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Photo, C. H Mitchell

MT. ROBSON (13,068 FT.)
From the summit of Mt. Resplendent

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CANADIAN ALPINE JOURNAL

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CANADIAN ALPINE JOURNAL

PUBLISHED BY
VOL. VI. THE ALPINE CLUB OF CANADA

MOUNTAINEERING SECTION

NORTHERN ROCKIES

THE ASCENT OF MT. NATAZHAT (13,480 feet) IN ALASKA (1913)

BY H. F. J. LAMBART

Two miles from the International Boundary Line, in Alaska, at the entrance to the Mt. St. Elias Alps from the north, stands the lonely and majestic snow-capped peak of Mt. Natazhat, crowning the top of the range of the same name. This range runs east and west for many miles, constituting a formidable barrier to further progress southward from the wooded country of the interior of the Yukon Territory and Alaska.

On entering this enchanted region one is struck by the suddenness of the change, as the Natazhat Range rises to a general altitude of about 10,000 feet. Fourteen miles

northward the White River skirts along the base of the foot-hills and derives its source from the Russell Glacier twenty-three miles to the west of the Boundary. This river receives all the inland drainage of the range as well as that on the Canadian side, by the Donjek, Kluane and Nesling Rivers for over a hundred miles. The valley of the White River is at an elevation of 3,000 feet at the International Boundary, so that the rise of 10,000 feet to the summit of Mt. Natazhat is very marked.

During the year 1909 and again last year (1913) I had the privilege of visiting this region in charge of a party in connection with the surveying and marking of the 141st Meridian, or the International Boundary Line between Alaska and the Canadian Yukon Territory. The survey work in connection with the running of this line had been going on since 1906 with, comparatively speaking, nothing to stop its steady advance over the face of the country until the Mt. St. Elias Alps, fringed by the Natazhat Range, were reached, and here things came to an abrupt stop, the line crossing the range at a point 9,740 feet in altitude covered with snow, ice and hanging glaciers.

Between this point and the Pacific Coast the distance is 120 miles, over a country which may be described as a region of colossal mountain ranges and innumerable glaciers. At the eighty-fifth mile, due south, stands Mt. St. Elias, the corner stone of the International Boundary, a beautiful snow white cone 18,000 feet high, looking out to sea over the intervening great Malaspina Glacier, which here is thirty-five miles wide and fronts the sea coast behind a narrow fringe of glacial débris.

The district at the head of the White River is highly mineralized in copper ores, and the recent sensational Chisana gold mining area is a short thirty miles over the line on the American side and fifty miles north of the high mountain ranges. The region abounds in game, the Ovis Dalli, or the white mountain sheep, being most common.

Photo, H. F. J. Lambart

MT. NATAZHAT (13,480 FT.)
Looking South from the Valley of the Kletsan River, showing the North Face

The first season spent, that is of 1909, the work ended at the base of the range; that done further south, behind the range, was merely of an exploratory nature upon which was outlined the movements for the subsequent operations in 1913.

A short description of these earlier explorations may not be amiss, as they were over a country absolutely unknown to any one, even to the natives sparsely scattered further to the north, which is saying a good deal nowadays.

During both years the country was entered by the same route, that is, by what is known as the Whitehorse and Kluane trail, 265 miles long, from Whitehorse into Cañon City, a small mining town on the White River, nine miles east of the Boundary.

With a desire to make the ascent of the highest point of the range (Mt. Natazhat), and to reach the point on the range where the line crosses it, a small separate party was organized to make the attempt. A direct approach by any of the ridges along the south face was out of the question, they being very steep, and covered with snow slides, heavily crevassed. The only hope lay in an attack from the south side.

Klutlan Glacier, which emerges from behind the range, ten miles to the eastward (on the Canadian side), appeared the most feasible, but was not considered, on account of the long detour which it would have entailed from our base of supplies situated at Cañon City. The route finally chosen was by way of Holmes Creek and Glacier, which seemed to cut its way through the range, fourteen miles on the American side. Pack trains were taken up this creek and glacier as far as possible and then for the rest of the way we indulged in that delightful occupation (?) of back-packing. Rumour had it that the Holmes Glacier forked; one branch, heading eastward towards Mt. Natazhat, affording an excellent means of

approach. This turned out to be a delusion, but we were fortunate in finding a pass over the range southward which stood about 2,000 feet above the head of the Holmes Glacier. On reaching this summit the country to the south spread out before us like an open book, filling us with that delight which comes with the knowledge that we were the first to look upon it.

Immediately below us stretched out the névés of the Klutlan Glacier like fingers of a giant hand; so far, the mouth only had been known, where it discharged from behind the veil of mystery. The whole country was covered with snow and glaciers, rock only showing along the mountain slopes too precipitous even for the hanging glacier. A descent to the surface of the Klutlan Glacier south, was made, and exploring this ten miles eastward, much joy was felt on making the discovery of a small glacier which took its source under the lofty Natazhat Peak and, flowing northwest, joined the glacier we were on.

To make a very long story short, no time was lost in establishing with some difficulty our camp at the foot of this small glacier. Two fruitless attempts to reach the summit followed and then it was decided to leave the whole district, for the time, on account of adverse weather conditions.

On returning some weeks later we contemplated, besides the ascent of Mt. Natazhat, the reaching of the summit of the range where the International Boundary crosses. The attempt proved ineffectual, ending in a final retreat to the Holmes Glacier, having experienced continual bad weather and heavy snow-falls; this during the latter end of August.

It was somewhat of a relief after our experiences behind the range to find ourselves again camped in green timber, and about a comfortable camp fire in the evening, instead of being huddled in a ring about a little oil stove

waiting for it to furnish a cup of tea all around. Such earlier experiences in the "ways of the oil stove" were not lost and in future we came to know the comfort from the use of the blue flame denatured alcohol burners, which were most successful not only as cookers but could be used to make the tents very comfortable, otherwise at times very cold and miserable.

I now pass to a description of the operations during last summer. This year we reached the district over a month earlier than in 1909 and, instead of Cañon City as a base of supplies, a base camp was fixed upon in nearly the last timber at the head of the Jenerk River, which has its source in the Klutlan Glacier. The journey by sleighs from Whitehorse consumed fifteen days, and we arrived at the above mentioned base camp (whither our provisions had gone before) on the 9th of April.

Twenty-five miles up the glacier behind the Natazhat Range brought us to the point where the International Boundary Line crosses the glacier at right angles; supplies, instruments and camp equipment were carried over this distance with sleds by man and dog power. I should like to interject here how successful the dogs proved to be in the hands of a competent driver, who thoroughly understood how to handle them. As the summer wore on and the sleighs were abandoned, the dogs did their share of the packing—Indian fashion—by two bags hanging down the sides, the weight coming along the top of the back. By this means the three dogs we had would take up to forty pounds when the going was very good.

In connection with the work of the survey nearly the whole summer was spent along the glacier, and it was in connection with this that again an attempt was made on Mt. Natazhat, which is the purpose of this short article to describe.

The distance of twenty-five miles from the base camp

on the Jenerk River to the Line was covered in stages; that is, all the supplies and equipment for the summer's work were brought up before a new camp was made further up on the glacier, each camp constituting our centre of activity.

The camping grounds left little to be desired on the whole, we taking advantage of the bare patches of ground afforded by the southern exposures, where the spring sunshine made everything beautiful. These benches were a never ending Garden of Eden, full of life and interest. The region, as I have mentioned before, had never been entered and in consequence the game was very plentiful and had little fear of us. The Willow Ptarmigan were in thousands and, as we worked up the glacier and the last of the willows came to an end, this variety most abruptly ceased and the shrill lonely calls of the little Rock Ptarmigan were the first to tell us of the new conditions to be met with in the near future. The trails of the white sheep (Ovis Dalli) were found all over these benches, rising a few hundred feet above the glacier on the north side of its valley. They were of much assistance to us and came in especially where the surface of the glacier itself was too rough or crevassed to travel on. On May 9th the season was so far advanced that the sleighs were abandoned. Several weeks before this, however, the trails were only possible in the early morning before the sun rose to soften them.

On May 23rd our efforts were all directed on an expedition which had the object in view of making the ascent of Mt. Natazhat. We had provisions for several weeks and carried a photo-topographical camera and a 6¼-inch Berger transit for the work we had hoped to do on the summit.

The first step was a journey of eight miles further up the glacier from the Boundary crossing, which was covered by back-packing all the way, over a well worn

Photo, H. F. J. Lambart

THE CAMP AT 8,200 FFET

sheep trail winding along the side hills and benches of the north side of the glacier. A camp at an elevation of 6,560 feet was made on the glacier where it is joined by the smaller one descending from the summit of Mt. Natazhat from the northeast. It was from the opposite side of this same glacier that the attempt on the summit was made in 1909, coming in by the head of the Klutlan Glacier and the Holmes Glacier Divide.

From the camp, as a base, we worked and relayed provisions, equipment, and a further camp to a point on a snow hummock overlooking the upper snow-fields underneath the summit of the range and at an altitude of 8,200 feet.

From the upper camp, on the 4th of June with back-packs, we broke a trail over the flat névé, stretching out below the camp to the opposite wall of the glacial valley, and from this point picked a route over an ice cataract to a small snow plateau on the side of the glacier wall, protected from avalanches of snow and a hanging glacier higher up, by a vertical rock cliff. Here I felt we could safely establish our last and highest camp (Alt. 9,700 feet) and await our opportunity to make the final ascent when the weather would permit. We dug out the snow for two small alpine tents, cached the loads and returned in the evening to the lower camp.

Not expecting much consideration, the weather outlook in the morning rather startled us by its brilliancy and, sooner than let a possible opportunity pass, we decided to get right out and attempt the ascent from this lower camp. In spite of the surprise the weather had given us, we got away fairly early in the morning with as much as we could carry for our upper camp. At ten o'clock, over the well beaten trail of the day before, we arrived at our upper camp ground, and there deposited our loads; and, after a light lunch, carrying surveying

camera and transit, continued on our way with high hopes of success.

Four hours of hard climbing followed; first over many snow slides, and then, as the ascent became steeper, we got into the formidable, hanging glaciers and high lateral crevasses of the southwest wall of the mountain which materially affected our rate of progress. The weather was watched with some anxiety as some clouds seemed to be rolling in from the south and southeast. For two hours we worked on steadily upwards, when we finally came up on to a rounded open snow-field which we judged to be the top of the ridge lying immediately to the west of the peak a mile distant, and a little over a thousand feet below the summit.

Half an hour before reaching this upper snow plateau the clouds and mists closed in all about and a very persistent snow-storm set in. A few minutes previous we could see far to the south and southeast over a maze of snow-capped mountains and innumerable glaciers glimmering in the bright afternoon sun; ninety miles to the south stood out against the hazy background the immense Logan Range with an altitude of nearly 19,000 feet; and a little further to the east the unmistakable outlines of Mt. St. Elias (18,000 feet). The storm increased in intensity, and it was beginning to come home to us that this was no passing caprice of the weather. Our packs were all piled on the open snow and covered with a signal flag, and beside them we securely fixed the eight-foot pole brought to mark our position on the summit. The return journey was immediately started. The snow fell so heavily that the man next on the rope (we were four on a hundred foot rope) was almost invisible. As the climb all the way was through snow at least a foot deep we felt some relief that there would be no difficulty in following the trail. This proved to be so, although nearing the position of our camp the trail was becoming very faint.

After a substantial meal taken huddled together about two oil stoves, in a 7x 7 alpine tent, we turned in, and I will have to confess, remained so until late the next morning, when we found our tent half buried in snow, and out through the ventilating window we could see the snow coming down just as it was when we turned in. This continued without a pause the whole day. Next morning the outlook had not changed in the least. On the third day of this order of things the snow slides opened up in all their fury, keeping up a continuous roar, and although we felt comparatively safe we could not fail to be conscious of a quickening of the pulse when it sounded as if the whole side of the mountain had fallen down and landed at our feet.

On the fourth day we began to be concerned as to whether we were going to get down to our lower camp at all. On the morning of the fifth day conditions had not changed a particle, the same monotonous purr of the snow on the top of the tent continued. Standing outside on the level, the snow came above the waist line, and after doing a lot of thinking in a very short space of time, it was decided to make an immediate return to the glacier below. The circumstances of this retreat through a blinding snow storm were too harrowing to describe here, suffice it to say we all arrived safely at the lower camp in the afternoon. The snow continued for three days longer; but later, weather conditions improved, until on the sixteenth a return was made to our lower camp, and from this camp on the eighteenth the summit was reached. At the summit of the ridge where the instruments had been left, a foot of the pole only appeared above the snow. This was fortunate for, as it was, we had no little difficulty in extracting instruments, etc., from underneath four feet of packed snow.

It was a great disappointment that on this last attempt the weather should again fail us just when

complete success seemed ours. Very little difficulty lay in the way between the ridge and the summit, it was merely a case of patient and slow plodding for three hours.

Eight hundred feet below the summit one member of the party was left behind to take a series of photographs, hoping against fate that the clouds might roll aside and just give us one glimpse of the glories of the scene which I know would have been unfolded to us at this altitude.

The summit was at last reached at 3.20 in the afternoon; it came upon us with such suddenness that it seemed hard to believe that we had not to continue climbing upwards.

All around and below stretched out a rolling sea of clouds, pierced here and there by the snow-capped summit of some lofty neighbor. A heavy wind was blowing from the northwest which chilled us through, and after planting our pole and taking a few photographs we were glad to beat a hasty retreat. The ascent had occupied over eleven hours, and the return journey slightly over five, from our camp at an altitude of 8,200 feet above sea.

MOUNT ROBSON
(1913)

By W. W. Foster

The year 1913 was unique in the annals of the Alpine Club of Canada, as in addition to the regular annual outing, the establishment of a supplementary camp, for active members only, provided an opportunity to visit "The New Field for Mountaineering," ably described by Mrs. Elizabeth Parker in an article appearing in the May issue of Scribner's, which had previously been reported upon by the Director of the Club, Mr. A. O. Wheeler, after a season of personal investigation.

Other articles in the club's annals detail the co-operation secured from the Railway Companies and the Provincial Government, which, coupled with the great organizing ability of the Director, made the establishment of a camp in this comparatively unknown territory possible, a wonderful region containing as a climax of many attractions, Mount Robson, the monarch of the Canadian Rockies, a peak which the Club's executive had determined to make its own.

En route by rail and trail, in the city, or resting around the base camp at Mount Robson station on the G.T.P.Ry., from whence a view could be obtained of the great mountain itself, some sixteen miles distant, the topic of conversation was naturally Mount Robson and how to conquer it. Curiously enough after the Director had announced the decision of the executive as to the personnel of the first two parties selected to make the attempt, and given Mr. A. H. MacCarthy, of Summit, N.J., with the writer, and Conrad Kain, their commission to climb Robson from its northeast side, Mr. MacCarthy and myself, whilst gazing at the mountain from the base

camp, sketched out upon its southerly face, seen from the railroad, what we thought might be a feasible route, little thinking that a few days later from Mount Robson's summit, we should complement our observations, and be forced by the exigencies of the situation partially to adopt it.

The northeast face, the one selected by members of the English Alpine Club for previous attempts, terminates in an arête, which from the valley below would appear to provide a sure and comparatively quick connection to the summit. Of the latter feature more anon, but, at any rate, the party received many assurances that "to make the arête meant the capture of the peak."

The first days were anything but encouraging in respect to weather conditions, but, on July 30th we left the main camp of the Alpine Club and rendezvoused at the "Extinguisher," a peculiar cone of rock far up the great Robson Glacier, and on its north side. There at an elevation of nearly seven thousand feet, a little cache was built for blankets and provisions, and, to avoid the discomfort of melting ice, a resting place made in the moraine by laying flat stones in a depression in the debris; as, although very anxious about the weather, which was still threatening, it was determined to get a good night's rest and be all ready for the morrow. The campaign mapped out that evening, in view of the facts that we were as high up as it was considered possible to camp, and that the failure of previous expeditions had been attributed to lack of time and bad weather conditions at higher altitudes, was to start in the morning as soon as there was any possibility of moving with safety, travel light to ensure all possible speed, and get back to the cache before darkness set in.

Midnight saw the last cloud roll away, and by three a.m. a clear, starry sky gave promise of the weather necessary to ensure success. At 3.30 all was in readiness

Photo, Byron Harmon

THE EXTINGUISHER

The Robson Party bivouacked at its foot the night before the ascent

for a start; but it was not light enough to get away until 4.15, and even then the first portion of the upper section of the Robson Glacier, with its fine séracs, and great crevasses, was crossed in the half light.

From the glacier, the course led up a broken wall of ice and snow to an outlier of Robson known, owing to its rounded top, as the "Dome." The summit of the Dome, 8,700 feet, was crossed at 7.30, and with the arête of Robson about two thousand feet above, and a magnificent day in prospect, there was every reason to feel satisfied. A slight descent to the northeast wall of Robson revealed a very ugly bergschrund which required considerable time and care to negotiate. Finally, however, with the assistance of a temporary bridge formed by a cave-in, it was overcome, and the wall of ice and rock was reached. From lower levels this wall appears to afford a lot of good rock work, but alas for appearances! The rock was covered with verglas (a thin coating of ice), and only at rare intervals could a real rock footing be obtained.

The climb up this two thousand feet of wall was extremely slow. Over one hundred ice-steps had to be cut in a 60 to a 65 per cent. slope. It was, of course, the shady side of the mountain, and the wind was very keen; in addition, a constant lookout had to be kept to guard against small slides from the overhanging slope above. Conrad would not accept any relief at step-cutting, saying he must know his own steps to come down that place. Sometimes many minutes elapsed before a forward move could be made, and standing in these ice-steps upon the steep slope, with drifting ice blowing around, was in a measure the most trying part of the climb, as when in progress, no matter what the difficulties may be, with the mind occupied the body will not feel fatigued.

The arête, whose elevation was determined at 10,500 feet, was reached at 12.30; its long knife-like edge, worn by wind and exposure, afforded no footing, and keen

disappointment mingled with admiration at the panorama before us. Far from affording an easy path to the summit, the ridge terminated in a small field of snow above which were great masses of ice and rock, built up dome upon dome; the exposed portions swept clear by raging storms revealed clear green ice scintillating in the sunshine, and, faintly outlined in the clouds above, appeared a spire, the true summit of Robson, impossible to distinguish from the lower levels.

A little place was cut out to rest for lunch, and it was noted whilst waiting, that as the sun passed over the mountain, the ice-steps cut with so much care would disappear, and that snow-slides on the small slopes were constantly taking place, rendering the wall we had ascended impossible except in the early morning.

The arête was followed westward by means of steps cut on the south side just below its edge; the main peak disappeared, and great domes of ice overshadowed the snowfield to which the arête gave access. The northern side from this point is impracticable, being perpendicular rock and ice with overhanging cornice.

From the southeast and south side the best view of the great masses of ice and rock completing the final ramparts of Robson could be obtained, many of them of most fantastic shape; but, more especially owing to the overhang of one great mass which appeared ready to break off, and which it would be necessary to cut up, under and around, it was determined to investigate the western face. This was found to be much more regular in formation, but, weather-worn as it was to a smooth surface, the ice was too hard to permit step-cutting in the time available, and a return was made to the southeast end of the snowfield, for a final encounter with the mountain, whose actual summit had not been seen since the brief glimpse obtained from the first portion of the arête at 12.30.

Ascending steep snow and ice, it was nearly 3 p.m. before an ice-wall was reached by crossing a narrow ice bulwark, which spanned the eastern end of a great crevasse, and from this ice-wall it appeared connection to the summit would be attained. Thence upward very strenuous work was encountered. Up steep pitches, in one place an ice couloir being negotiated which was almost perpendicular, Conrad cut steps as though inspired. The flying ice combined with drifting snow blown off the higher slopes, froze upon the clothing, and the rope, which had been wet earlier in the day, became hard and difficult to handle. Fortunately, except for a few clouds around the summit, the sky was clear, and whilst dome after dome obscured any vision of the actual summit, the rate of grade and aneroid readings gave assurance that the end was near.

A little cap of cloud covered the exact summit, and when after a short, steep piece of work Conrad turned and said "I will take you no further," it was difficult for a moment to realize that Robson was won. A few minutes later every particle of cloud rolled away, and a panorama was unfolded that can never be described. Two thousand feet higher than any other mountain, as though at the masthead, we beheld a sea of mountains, glaciers, snowfields, lakes and waterways, displayed in endless array; just a hint of civilization appeared in a little smoke along the G.T.P. and C.N.R. right-of-way beside the Fraser River, and, nestling beside Berg Lake straight down below, the tents of the Alpine Club sent the smoke curling up from the commissariat. In all, the vision bounded only by the horizon, must have included eight to nine thousand square miles of wonderful alpine territory, and awed too by the realization that this was but a tithe of the country's vast scenic heritage, little was said during the fifteen minutes spent on the summit.

The aneroids showed an approximate elevation of 13,150 feet, and when at 5.30 p.m. the descent was decided

upon, Conrad voiced the opinion of all three in saying that we could not return the way we came up, knowing the steps would be gone on the northeast wall, and in any case it would be dark before we could reach it.

However, the west side of the mountain appealed to all, and starting off with Conrad's cheery "I will find a way," splendid progress was made down the steep ice to the snowfield, and thence it was concluded to cut down to the glacier falling from the south side of Robson toward the valley of the Little Fork of the Fraser, trusting to find from the glacier some means of reaching the rocks of lower altitude. The glacier, which from the heights above appeared so full of promise, was badly crevassed and sheer ice falls, blocking the way, necessitated its abandonment. Retracing up the glacier and to the east in the failing light, access was obtained to bare rock, and just before dark a resting-place was located at a little over nine thousand feet elevation, with the arête travelled earlier in the morning above. To the west lay the glacier, upon which great avalanches soon commenced to pour from the upward heights, whilst for thousands of feet below dropped away the great rock ramparts of Robson's western face. With a few loose stones at the feet to give more or less imaginary stability to the sloping resting-place, lying close together, and for a while tying left arms together with ropes, but afterwards casting loose as "one turn, all turn" would be necessary, a good rest was obtained, the last word being from the irrepressible Conrad, who, after a particularly heavy avalanche had thundered down the glacier, said: "If that goes on, it will spoil my good night's rest."

Daylight disclosed three cold climbers, with faces badly swollen as a result of exposure, one telling how he dreamt that his friends in Austria had passed along in the night with loads of wood for a camp-fire and how he "forgot to get a match," whilst another had "visions of friends from the camp below with huge piles of blankets,

Conrad Kain W. W. Foster A. H. MacCarthy

Photo, C. H. Mitchell

THE PARTY WHO MADE THE FIRST COMPLETE ASCENT OF MT. ROBSON, JULY 31ST, 1913

but none to spare." Then came a rock descent which seemed under the circumstances almost interminable. There is ledge after ledge on this side of Robson, a little shelf of shale and then a wall of rock, sometimes perpendicular in character and often with an overhang just above the shelf, repeated for thousands of feet. Time after time a ledge would be reached that seemed to bar further means of descent, until some passable chimney would be discovered to connect with the ledge below.

For four hours these rocky ramparts were contended with, and then it was found possible to make a crossing below the great glacier, whose configuration had barred progress the night before, to the western side of the valley, thence work around to the rock ridge connecting Robson with its most southerly outlier, cross the ridge and descend its western face to Lake Kinney where, at 12.30, the climb was over. Four hours later, approaching camp by the Lake Kinney trail, the party met Mrs. E. Parker making observations at Berg Lake, and the first congratulations received upon a successful ascent and complete traverse of the mountain were enhanced in value at the hands of one of the Club's lady officers.

The primary factor in the success of this expedition was, of course, the ideal weather conditions, superinduced by the marvelous resource and skill of Conrad Kain, whilst the fact that the party had been out together upon many previous occasions, ensured that mutual confidence essential to quick work. Time upon this climb is a vital factor, as it is not only necessary to reach the summit, but, to do so in time to return to safety before dark, if success is to be attained.

The northeast route as followed in the ascent is a magnificent one, but for reasons given can only be used in conjunction with a descent on the opposite side, and this, on account of the time involved, renders it

impracticable at present. Remember, there are six hundred ice-steps to cut.

The south or southwest side gives every promise of being the one from which ascents should be made, as permitting the establishment of a cache at a fairly high altitude, and the possibility of more expeditious climbing beyond, and I believe this opinion was corroborated by the subsequent investigation of other parties.

THE FIRST ASCENT OF MT. ROBSON, THE HIGHEST PEAK OF THE ROCKIES (1913)

By Conrad Kain
(Translated by P. A. W. Wallace)

On reaching the Robson Glacier after the ascent of Mt. Resplendent, I went down to the timber at 6,700 feet. Here I met my *Herren* for Mount Robson. Both were busy about the fire, Mr. Foster (Deputy Minister of Public Works for British Columbia) with cooking, Mr. MacCarthy with gathering wood. After a good supper, we went up, laden with firewood, to the foot of the Extinguisher. The rock bears this name on account of its form (candle extinguisher). On the moraine we made our shelter beside a wall of stones, over which we stretched a piece of canvas and crept under it like marmots into their hole.

I awoke early next morning and felt pain in my eyes, and for a long time I could not open them. It felt as if my eyes were filled with sand. My snow glasses were no good. I saw a starry sky, which was more than we had expected. I applied cold poultices for half an hour and the pain in my eyes began to abate. I lit the fire and wakened my *Herren*. Both were delighted at the sight of a cloudless sky.

At 4.30 a.m., after an early but good breakfast, we left our bivouac. We followed the route of the previous day (ascent of Mt. Resplendent), over the glacier. Before we came to the Pass, we swerved to the right. From this point began the real climb of Mt. Robson. We climbed up an avalanche trough, then under some dangerous ice bridges to the right. The snow was in bad condition. We proceeded without any difficulties towards the steep

snow-slope that descends from the Dome (10,000 feet) and reached it at 7 a.m. We took a rest and deliberated over the route ahead.

Two years ago I spent hours studying this route, and did not take the bergschrund very seriously. From the Dome, one had a nearer survey of the bergschrund. We approached it over the glacier, which is here not very steep. A rib of rock comes down almost to the schrund. Over this rock I planned to ascend, but after every possible attempt we were forced to give it up, for at this place the glacier breaks off sheer. For about two hundred feet we followed along the bergschrund to the right. Here was the only possibility at hand of overcoming it. After long chopping at the ice, I stood on its 65 degree slope. Across the schrund I made more steps. Then I let both *Herren* follow.

A thin layer of snow lay on the ice, and, owing to the melting of the snow, the ice was in very bad condition for step-cutting. I made the steps in a zig-zag. Mr. Foster counted 105 steps to a ledge of rock. The rock, when seen from below, promised good climbing and a rapid advance. But it turned out otherwise. We climbed up an icy wall, and then to our disappointment had an ice-slope before us, fifty or sixty meters high. I kept as well as I could to the rocks that protruded here and there, which saved me a few steps. At the top of the slope we had another wall of rock, and above that an almost hopeless ice-slope. One could see the tracks of falling stones and avalanches. On this slope I made 110 steps. It was a relief to climb on rocks again, though they were glazed with ice. But unfortunately the satisfaction was short, and for several hundred meters we had to climb again upon a slope of ice and snow. The snow here was in danger of avalanching. For safety, I lengthened the rope on the dangerous slope.

At last we reached the shoulder at twelve o'clock noon. I do not know whether my *Herren* contemplated

Byron Harmon, photo

MT. ROBSON, (13,068 FT.) E. FACE
Kain's ascent shown by black line

Swan Electric Engraving Co., Ltd.

with a keen alpine eye the dangers to which we were exposed from the bergschrund. In the year 1909 this route was attempted by Mr. Mumm, Mr. Amery with the guide Inderbinen from Zermatt. The party were in danger of their lives from an avalanche. I spoke with Inderbinen: he said, "I never before saw death so near."

On the shoulder we took a mid-day rest. There came a snowy wind that wet us to the bone. We pulled out all the clothing stowed away in our rucksacks. We found the shoulder less broad than we expected. It was a snow ridge, on the northeast side of which were over-hanging cornices fringed with long icicles glittering in the sun, a glorious picture.

For a few hundred meters we had to keep to the southeast side. The snow on this side was in good condition, so that we made rapid progress. There was on each side a splendid view into the depths below (*Tiefblick*). The more beautiful view was that of the Robson Glacier, Smoky Valley and Mt. Resplendent and the Lynx Range opposite.

From the shoulder to the peak, the route was no longer so dangerous, but complicated by the loose, powdery snow. It was as if we were on an entirely different climb on the southeast side. The complications arose from walls of snow. Never before on all my climbs have I seen such snow formations. The snow walls were terraced. The ledges between the walls were of different widths, and all were covered with loose snow. I often sank in to my hips. There were forms on the walls like ostrich feathers, a truly strange and beautiful winter scene. Unfortunately we had no camera with us. Some of the walls were fifteen to twenty meters high. It was difficult to find a way up from one terrace to another. At one place I worked for over half an hour without effect. We had to go back. A very narrow and steep couloir offered the only possibility. I warned my *Herren*

that the piece would take considerable time to negotiate. Both had a good stand and kept moving as much as possible in order to keep warm. The wind was so bad here that I often had to stop. The steepness alone, apart from wind, made step-cutting very hard work. For a number of steps I had first to make a handhold in the ice, and swing the axe with one hand. I do not think I need to describe this method any more fully, for everyone who has ever been on the ice, knows that cutting steps with one hand is a frightfully slow process. I know that in such places it is not pleasant either for those behind. As soon as I was convinced that I could make it, I called to my *Herren*: "Just be patient, the bad place will soon be conquered, and the peak is ours." Mr. MacCarthy answered: "We are all right here, we are only sorry for you. I don't understand how you can still keep on cutting steps."

When we had the difficult place behind us, the reward was a fairly steep snow-slope, with the snow in good condition so that we could all three go abreast. At the top of the snow-slope was another wall, which, however, could be outflanked without difficulty.

The last stretch to the summit was a snow-ridge. I turned to my *Herren* with the words: "Gentlemen, that's so far as I can take you."

In a few seconds both stood beside me on the peak. We shook hands with one another. I added my usual Alpine greeting in German, "*Bergheil.*" Of course, I had to explain the word *Bergheil* because both knew no German. There is no word in the English language which has the same meaning as *Bergheil.*

On the crest of the king of the Rockies, there was not much room to stand. We descended a few meters and stamped down a good space. It was half-past five o'clock. Our barometer showed exactly 13,000 feet.

The view was glorious in all directions. One could compare the sea of glaciers and mountains with a stormy ocean. Mt. Robson is about 2,000 feet higher than all the other mountains in the neighborhood. Indescribably beautiful was the vertical view towards Berg Lake and the camp below (see picture of camp with Mt. Robson). Unfortunately only fifteen minutes were allowed us on the summit, ten of pure pleasure and five of teeth chattering. The rope and our damp clothes were frozen as hard as bone. And so we had to think of the long descent—5.45 o'clock.

As far as the steep couloir, all went well. The descent over this piece was difficult. All the steps were covered with snow. Except for this, we had no difficulties till the shoulder. As it was late, I proposed to descend by the glacier on the south side, for greater safety. Besides the question of time, it seemed to me too dangerous to make our descent over the route of ascent. As a guide with two *Herren*, one has to take such dangers more into account than do amateurs, for upon one's shoulders rests the responsibility for men's lives. Also as a guide one must consider his calling and the sharp tongues that set going on all sides like clockwork when a guide with his party gets into a dangerous situation. It was clear to me that we must spend a night on the mountain. The descent was not quite clear to me. I was convinced that on this side we could get farther down than by the way we came up. My bivouac motto is: "A night out is hardly ever agreeable, and above 3,000 meters always a lottery."

After the shoulder, we had a steep snow-slope to the glacier. I made about 120 steps. Once on the glacier, we went down rapidly for a few hundred meters until a sheer precipice barred the way. So far and no farther. Vain was my search for a way down. We had to go back uphill, which was naturally no pleasure. Between rocks

and glacier was a very steep icy trench which offered us the only descent. I examined the icy trench for a few minutes, and the ice cliffs overhanging us. I saw the opportunity and, of course, the dangers too. Mr. Foster asked me what my opinion was, whether we could go on or not. I answered, quite truly: "We can; it is practicable but dangerous." Captain MacCarthy said: "Conrad, if it is not too dangerous for you, cutting steps, then don't worry about us. We'll trust to you and fortune."

That made matters easier for me, as I could see that both *Herren* had no fear. I lengthened the rope and left the *Herren* in a sheltered spot. I made the steps just as carefully and quickly as I could. When I had reached a good place I let both *Herren* follow. Mr. MacCarthy went last, and I was astonished at his surefootedness. This dangerous trench took a whole hour to negotiate. The rock was frozen, but the consciousness that we had such terrible danger behind us, helped us over the rocks. In greater safety we rested beneath the rocks.

Below us was the glacier which, seen from above, promised a good descent almost to timber-line. I remembered that the glacier had still another break-off and knew that we must camp out. However, I said nothing of this to my *Herren*, but the opposite. I pointed with my axe to the woods with the words: "It will be a fine night down there in the woods beside a big fire." Both chimed in, for the word "fire" makes a very different impression when one is standing in soaking clothes upon ice and snow; from the word "fire" when one is aroused by it from a sound sleep.

We did not find the glacier as good as we expected. We searched our way through ice debris in an avalanche bed. Here on the glacier the sun bade us good night. The sunset was beautiful. It would have been more beautiful to us if the sun had been delayed one hour. It was a melancholy moment when the last glow of evening faded

in the west. We rested and spoke on this theme. Mr. MacCarthy said: "It is as well that the law of nature cannot be changed by men. What a panic it would raise if we succeeded in delaying the sun for an hour! It is possible that somewhere some alpinists will to-morrow morning be in the same situation as we are, and will be waiting eagerly for the friendly sun."

Despite the approach of darkness we went on. About ten o'clock in the evening we reached the rocks. It was out of the question to go any further. Our feet felt the effects of the last seventeen hours on ice and rock, and so we were easily satisfied with a resting place. A ledge of rock two meters wide offered us a good place to bivouac. We made it as comfortable as we could. We built a little sheltering wall about us. Our provision bag still had plenty of sandwiches, and Mr. MacCarthy, to our surprise, brought a large packet of chocolate from his rucksack. We took our boots off. I gave Mr. Foster my dry pair of extra mitts for socks, so we all had dry feet, which is the important thing in camping out. The *Herren* had only one rucksack between them, into which they put their feet. Both *Herren* were roped up to a rock.

I gave a few hints on bivouacing, for there are some tricks in sleeping out on cold rocks that one can only learn by experience. Fortunately the night was a warm one, threatening rain. Clouds were hanging in the sky, which, however, the west wind swept away to the east. In the valley we saw flickering the campfire of the Alpine Club and of the construction camp of the Canadian Northern and Grand Trunk Railways. I was very tired and went to sleep without any trouble. A thundering avalanche woke me from a sound sleep. I heard Mr. Foster's teeth chatter as he lay beside me. I uttered no word of sympathy, but went to sleep again.

Later I was awakened by a dream. I dreamed that we were quite close to a forest. I saw wood close at hand, and

dry branches ready for kindling. In the dream I reproached myself what the *Herren* would think of me, sleeping here in the forest with firewood, but without a fire and almost freezing. With these reproaches I awoke and sat up to convince myself whether the forest and firewood were really so near. But I saw only a few stars and in the east a few gray clouds lit up with the dawn. I could not get to sleep again, but lay quietly and listened to the thunder of the avalanches which broke the almost ghostly silence of Nature. At daybreak it became considerably warmer, so my *Herren*, who had spent a cold and sleepless night, now fell sound asleep.

At six o'clock the friendly beams of the sun reached us. I wakened my *Herren*. Both sat up and described the pain in their eyes, which they could not open. The eyes of both were greatly swollen. It was not a pleasant sight. I thought both were snow-blind. Snow-blind, at a height of 9,000 feet, and in such a situation—that might have an unpleasant ending. After some cold poultices, the pain abated and both were able to keep their eyes open.

I told my dream. Both *Herren* had dreams of a similar nature, which had reference to the cold night. Mr. Foster dreamed that a number of his friends came with blankets and commiserated the barren camping ground, and no one covered him. Mr. MacCarthy, in his dream, implored his wife for more blankets, and his wife stopped him with the curt reply: "O no, dear, you can't have any blankets. Sleeping without any is good training if we want to go to the North Pole."

I searched for a descent over the rocks. After a quarter of an hour I came back.

"Yes, we can make it without further difficulty."

At 6.45 a.m. we left the bivouac, which will certainly remain in our memory. We did not get down so easily after all. We had to get around sheer walls. The climbing was difficult, and at some places the rock was

Photo, Byron Harmon

MT. ROBSON FROM THE FRASER VALLEY, SHOWING THE W. FACE ON THE LEFT, THE S. FACE IN THE CENTRE, AND THE S. AND S.S.E. ARÊTES ON THE RIGHT

Kain's line of ascent (after reaching the S.S.E arête from the E.) and descent shown ~~~~~
Night spent at +
Schaufelberger's line of ascent shown - - - - - - -
Kain's line of second ascent shown . . . . . First night's bivouac at x.
Kinney and Phillips' line of ascent shown — · — · — · Kinney left records at o.

very rotten. This was very unpleasant for my *Herren.* They could only see a few steps through their glasses and swollen eyes.

At last we had the most difficult part behind us, but not the most dangerous. We had to traverse a hanging glacier. For ten minutes we were exposed to the greatest danger. I certainly breathed freely when we lay down to rest under some overhanging rock. Our barometer showed 8,200 feet, time 10.15 a.m. That eight hundred feet had taken three hours to negotiate. I said to my *Herren*: "I am happy to be able to inform you that we have all dangers behind us. We shall reach the green grass in the valley safe and sound even to our swollen eyes."

We crossed loose stone to the southwest ridge. This ridge should be the easiest way up to the peak. From here we had a beautiful view of Lake Kinney below. Without further difficulty we descended through a wild, romantic gorge to the lake. In the gorge we had a slide over old snow. At eleven o'clock we took a long rest and devoured everything eatable we could find left in our provision bag. Then we followed the newly-built trail to camp.

About five o'clock in the afternoon we came, hungry and tired into camp, where we were hospitably received by our fellow campers with food and drink and congratulations.

From what Donald Phillips himself said, our ascent was really the first ascent of Mt. Robson. Phillips' words are as follows: "We reached, on our ascent (in mist and storm), an ice-dome fifty or sixty feet high, which we took for the peak. The danger was too great to ascend the dome."

Phillips and Kinney made the ascent over the west ridge. The west side is, as far as I could see, the most

dangerous side that one can choose. Kinney undertook the journey from Edmonton alone with five horses. On the way he met Donald Phillips who was on a prospecting tour. Mr. Kinney persuaded Phillips to accompany him. Phillips had never before made this kind of a mountain trip and says himself that he had no suspicion of its dangers. They had between them one ice-axe and a bit of ordinary rope. They deserve more credit than we, even though they did not reach the highest point, for in 1909 they had many more obstacles to overcome than we; for at that time the railway, which brought us almost to the foot of the mountain, was then no less than 200 miles from their goal, and their way had to be made over rocks and brush, and we must not forget the dangerous river crossings.

Mt. Robson is one of the most beautiful mountains in the Rockies and certainly the most difficult one. In all my mountaineering in various countries, I have climbed only a few mountains that were hemmed in with more difficulties. Mt. Robson is one of the most dangerous expeditions I have made. The dangers consist in snow and ice, stone avalanches, and treacherous weather.

Ever since I came to Canada and the Rockies, it was my constant wish to climb the highest peak. My wish was fulfilled. For this ascent I could have wished for no better companions. Both *Herren* were good climbers and Nature lovers, and made me no difficulties on the way. Each had a friendly word of thanks for my guiding. In this country people are much more democratic than with us in Europe, and have less regard for titles and high officials; but still it was a great satisfaction to me to have the pleasure of climbing with a Canadian statesman.

B. S. Darling H. H. Prouty Walter Schauffelberger

Photo, C. H. Mitchell

ATTEMPT OF MT. ROBSON
By West Arête

FIRST ATTEMPT ON ROBSON BY THE WEST ARÊTE (1913)

By B. S. Darling

During the Robson Camp of 1913 three attempts were made to climb Mount Robson, one of which resulted in the ascent and traverse of the great mountain, an exploit performed with a judgment, dash and finish that should place it in the category of historic climbs. Too much credit cannot be given to W. W. Foster, A. H. MacCarthy and that prince of guides, Conrad Kain, for this fine achievement; probably the most notable piece of mountaineering ever accomplished in Canada. An account of it will be found elsewhere in these pages. It has fallen to me to write of the other attempts, in both of which I had the good fortune to take part. The description of them may be of some interest to other explorers, seeing that new routes were followed and the summit almost attained on each occasion.

The successful ascent on the 31st July, made the Director ambitious to have another route explored, so on the afternoon of Sunday, August 3rd, he despatched H. H. Prouty and myself, under Walter Schauffelberger's guidance, to attack the west arête. We camped for the night alongside the Grand Fork of the Fraser, about half a mile above Emperor Falls, with a party under the guidance of Conrad, bound for Mount Whitehorn. The weather looked very unpromising as we turned in, stormy clouds having collected after nightfall and blotted out all but a few irrepressible stars, which continued to twinkle down at us through the gathering vapours.

Next morning we were greeted by a grey and watery sky, and set out in anything but a spirit of optimism. We

decided, however, to go on until things got worse, and in a drizzle of rain we forded the turbulent waters of the Grand Fork, about half a mile above our camp, where the stream spreads out over wide gravel flats. Walter was very nearly carried away by the powerful current, but finally, after much zig-zagging in search of shallow water, we got over. Once across, a few minutes climbing brought us to the end of the burnt timber, which clothes the lower slopes of the mountain at this point, and here we added a supply of firewood to our packs. Our burdens now weighed about thirty-five pounds each, and contained sleeping bags, rope, extra clothes and provisions.

The lower escarpments of the mountain on the north and northwest, which we had to surmount before arriving at the base of the west arête, are marked by several sloping terraces of scree, rising one above the other, for about three thousand feet. We reached the first of these by a slanting ledge rising immediately in front of our fording place. Going west along it for two hundred yards or so, we came upon a steep couloir, by which we climbed to a second terrace 1,000 feet above, coming out below some precipitous and often overhanging cliffs, vividly marked in black and yellow. We passed below these imposing walls for about 800 yards and then climbed 400 feet or so, to the final terrace, by the first couloir we came to. This last scree slope covers an immense area, its highest point being nearly 2,000 feet above its base line, which extends from the north to the west arête, on a level at which the ridges are quite two miles apart.

We worked our way across this colossal rock slide for about two hours, climbing gradually as we did so, and made camp at four o'clock, at an altitude of 8,500 feet, beside a waterfall to the north of the big fan of snow and ice formed by the avalanches from the northwest face, and not far from the point where we planned to gain the crest of the west arête, which was now only separated from us by the avalanche fan. We were protected on the

upper side by a small cliff, and round the other sides we built a wall of rocks, making as comfortable a sleeping place as the circumstances allowed.

The weather had turned very fine during the day and the summit was now in clear view from our camping place. The profile of the west ridge was too close for us to approximate its possibilities, but it seemed to me that the extraordinary séracs surrounding the final ice cap would prove nasty obstacles. From our camping place, they looked like a host of white-cowled monks, standing in silent ranks and clusters along the upper reaches of the north arête and about the summit—weird fantastic figures, which a more imaginative and unsophisticated race than ours would soon weave into a fabric of legend and supernatural lore. High up on the west ridge, three or four gigantic cornices soared out from its precipitous walls, like the wings of Victories. Prouty likened them to enormous gargoyles.

After eating our supper in the pleasant light and warmth of the declining sun we turned in about 8.30, confident of the morrow, although our ridge looked formidable for every inch of the 5,000 feet or so it towered above us. The rocks, however, were in splendid condition and so were we, and overhead, the stars shone from an unclouded sky.

Next morning we were up at four o'clock and away at the first light, shortly before five. We traversed across the avalanche fan and along a yellow band of rock until we struck the crest of our ridge at about 8,400 feet. Lake Kinney and the valley of the Grand Fork lay 5,000 feet below us, still in dark shadow. Above us the fast brightening sky was clear of cloud.

The great cliffs which rise from the valley to the base of the vast field of scree upon which we had spent the night, stretch for several miles along the base of the mountain, scored by many gullies, but unbroken by

definite ridges. The west arête springs full grown from the top of this mighty rampart and soars upward for another 5,000 feet, dividing the westerly face of the mountain into two triangles of comparatively equal magnitude, one containing the huge field of scree, and the other furrowed by the great couloir of the southwest face.

The first 500 feet of the arête consists of yellow and very rotten rock. The balance is of a much firmer nature, grey in colour, and in some places, almost black. From top to bottom, the ridge is steep, rising like a gigantic staircase, with very narrow and far-separated treads. On the north it falls away in sheer cliffs, and on the south slopes at steep angles toward the great couloir of the southwest face. Its crest is never more than a few yards wide, and in places narrows to a few feet, so that there is never much chance to wander aside, although it is often necessary to work out upon the southerly walls of the arête in order to surmount many otherwise impassable cliffs

For more than twelve hours we worked steadily upwards, halting only at long intervals, and then solely when the inner man cried out for food. The difficulties were never exceptional, but they were continuous, always requiring care and often preventing the movement of more than one at a time. Only once did we lose by having to descend, and then less than a hundred feet, but we undoubtedly lost much time in reconnaisance, for each cliff presented a problem.

At 12,000 feet the steepness of the ridge lessened, but the rocks gave place to ice, and our progress became snail-like, for every step had to be cut. We were now high above every other peak in sight, and the surrounding country lay below us like a Cyclopean relief map, in which even the sharp spire of Mount Whitehorn was bereft of its distinction. Across from us, converging upon the peak, now less than 1,000 feet above, rose the north and

Photos, B. S. Darling

A BIG CORNICE ON THE WEST ARÊTE 400 FEET BELOW THE SUMMIT
Walter Schauffelberger cutting steps

WALTER AFTER THE BIVOUAC ON THE WEST ARÊTE

southwest arêtes, one on either hand. From the long thin upper crest of the north arête, and in tiers about the summit, sprang up the amazing storm-wrought conformations we had seen from far below. I have never found on any other mountain such extraordinary sculpturings of ice; rough-hewn, indomitable figures, carved as though some Rodin of the elements had chiselled them with frost and tempest for his tools.

At 12,500 feet the ridge narrowed sharply, and we passed below the first of the terrific cornices we had seen from below. For the next 100 feet or so, we were forced from one slope of the ridge to the other, the cornices which soared out on both sides preventing a direct ascent. We were thus kept on slopes of hard ice, covered with a film of avalanchy snow, set at angles of from 50 to 60 degrees, where Walter could strike only short arm blows, and cut less than sixty steps an hour. Ahead of us the summit was in clear view, seemingly only a stone's throw away; but there were still several tremendous cornices to be passed on the ridge, to say nothing of the mass of tumultuous ice surrounding the peak.

The weather had by this time taken an abrupt change. The sky became suddenly overcast and black storm clouds swept up the great ice slopes and couloirs below us. Snow began to fall, the cold became intense, and the rope froze till it was like wire, and could only be coiled in large hoops. A strong wind began to blow, and the peak became obscured by mist and snow. There was now less than four hundred feet to climb, but it was nearly six o'clock and at our rate of progress, it was manifestly impossible to cut up to the summit before nightfall. To have done so would have meant spending the night stormbound on the ice cap, with the certainty of frost bite, or worse, and we had also to face the task of descending the difficult rocks we had taken twelve and a half hours to ascend, coated as they soon would be with verglas and snow.

For some time we said nothing, except to urge Walter to cut faster. He was working like a demon, and making the steps very far apart, but the minutes flashed by, and it soon became apparent that if we were to get off the ice before dark, we must turn back. After a brief consultation, we decided to do so, and bitterly disappointed, began to descend at 6.15 p.m. Getting down the ice steps, cut hurriedly and far apart as they had been, was a very ticklish piece of work, and we were all relieved when we passed the last cornice, and regained the crest of the arête. The fresh snow interfered very much with our progress, and night, which came early under the black sky, overtook us at 11,000 feet and forced us to bivouac.

The arête was so steep on both sides that we had to choose our resting place upon its very crest, across which the storm swept with unbroken force. We levelled a place large enough for three, beside a big boulder, built a wall about us with the large slabs of limestone that littered the ridge and so got some shelter. Having anticipated the possibility of being benighted, we had brought extra stockings, shirts and sweaters. We donned this additional apparel, wrapped our puttees around our wet knees, put our feet in our rucksacks, and prepared to weather the night, thanking our good fairies, as we listened to the wild music of the storm about the peak, that we were no higher up.

Snow fell all night, and thunder, lightning and the roar of the gale were continuous. We spent the long hours in alternately lying down and getting up to swing our arms, shivering from head to foot most of the time. Walter lay next the boulder, while Prouty and I changed places at intervals, as the one on the outside got too cold. Fortunately, we had plenty of food, and at 1.30 a.m. broke the monotony by a huge meal, topped off by some Philadelphia chocolates, presented to us by Miss Walcott before we started. At 3.30 the Stygian blackness assumed a tinge of grey and we prepared to move, but the light

penetrated very slowly through the dense mist that enveloped us, so that it was after 5 o'clock before we were able to start downwards again. When we did so, our progress was extremely slow, for the rocks, the rope and ourselves were coated with ice and snow.

At 10,500 feet, we came upon a place where the condition of the rocks made descent by our upward route impossible. Here we spent two somewhat anxious hours, finding an alternative way. For a time it looked as if we were trapped, but finally, by traversing out upon the south wall of the ridge and descending by a series of ledges of black rock, we reached the great snow-filled couloir of the southwest face, at an altitude of 10,200 feet. The snow was in good condition, and we made a rapid descent until at 9,400 feet we came upon the yellow rock, which at this altitude extends along the southwest face of the mountain, in a series of horizontal bands. The snow in the couloir was deeply cut by an avalanche trough six feet deep and three feet wide, down which small avalanches of fresh snow fell constantly. We had to cross this trough twice, jumping over the swift flow of the avalanching snow as we did so. The couloir, as a matter of fact, formed a somewhat unsatisfactory and dangerous path, but, during the time we were in it, the avalanches fortunately kept within the depression.

Until we reached the couloir, the mist had at no time allowed us to see more than a couple of hundred feet in any direction, but it opened up three or four times, as we neared 9,000 feet and we were enabled to get our bearings. The dissolving views at this time were marvellous. The mist, however, did not clear away.

After reaching the yellow rock, we took the first practicable band, and following it northwards, crossed the west arête near its base, and reached our 8,500 foot camp at 1.30 p.m., two hours after leaving the couloir. As we crossed the arête, the mist lifted for a time, but

even so, we had some difficulty in finding our little camp in the vast field of scree that encompassed it. Avalanches of new snow kept falling continuously from the northwest face on to the avalanche fan, forming a series of fine cascades, stretching all along the base of the great ice slopes enclosed by the upper reaches of the north and west arêtes.

At our camp we built a fire with some difficulty from the remains of our wood, and made some tea. The weather was raw and cold with squalls of mist and rain, but we were now below the clouds which still enveloped the upper portions of the mountain. At 2.45 p.m. we began our descent to the Grand Fork, and following the route of our ascent two days before, reached it without difficulty. In wading the river, Walter was again nearly carried down, but managed to scramble out, drenched from head to foot.

We reached Robson Pass about 7 o'clock. Walter went ahead as courier to break the news of our defeat, and as we approached camp, a crowd of members came out to commiserate with us for losing the peak, and congratulate us on a safe return. It appeared that owing to the bad weather some anxiety had been felt for our safety. Prouty's feet were in a battered condition, thanks to a badly fitting pair of boots, so he retired to his tent after getting something to eat, but I was haled before the camp fire to give an account of our adventures, and did not get into my sleeping bag until midnight.

AN ASCENT OF MT. ROBSON FROM THE SOUTHWEST (1913)

By Albert H. MacCarthy and Basil S. Darling

Narrative by MacCarthy.

Glancing at Robson's shining white cap, the Director said: "Gentlemen, your duty lies before you; forward, march!" and thus at 9 a.m. on August 10th, 1913, with the barometer reading 5,550 feet, which accorded with the determined altitude of Robson Pass near by, we set out from camp for an attempt to find a safe, feasible route of ascent of the "King of the Rockies" from the southwest side. It was the morning of breaking camp at Robson Pass and the return of the rest of the members of the Club to the railroad and civilization; the sun was shining brightly, the sky fairly clear, and everything seemed to bid fair for a good try at our "one very grand duty," as Conrad smilingly put it.

About a mile below the foot of Berg Lake, where the northwest shoulder of Robson juts out into the Grand Fork valley, our party of two ropes, Conrad Kain and the writer, Walter Schauffelberger and B. S. Darling, bade farewell to the campers tracking out, and left the trail. With the aid of "Curlie" and two of his pack horses, Darling and I crossed the river dry shod, while Conrad, with one foot wet, laconically remarked, "I'm almost wet now, so I complete the job," and with a dash he completed it well to the waist line; and Walter, trying to keep his feet dry, searched for a crossing somewhat above us, slipped from a boulder and fell full length into the stream. Had Darling and I known what was in store for us we probably would have taken a plunge also and saved ourselves further trouble over the question of dry

clothing, that causes so much concern at the outset of an expedition, but which soon loses its importance.

After a hasty snack we gathered bundles of firewood and at noon began the ascent, each carrying packs we estimated to be of about thirty-five pounds weight. During most of the afternoon the general route taken by Walter, Darling and Prouty, from the Mazama Club of Portland, on their attempt of August 3rd was followed. We ascended a steep clay slope, then a narrow rock-step couloir and at 12.55 reached the first ledge at 6,600 feet elevation, the bluffs above being of dark gray slate. This ledge is broad and well covered with patches of short, soft grass, and with the beautiful view of Lake Adolphus, Robson Pass, Berg Lake, and our first real sight of the appropriately named "Valley of the Thousand Falls" spread out before us, all topped by Whitehorn's sharp peak, we instinctively dropped our packs and drank in the wonderful panorama; a remark from Conrad, however, soon brought us back to the task before us, for with his sharp eye he spied and pointed out on the cliffs across the valley four goats and said: "Ach, gentlemen, to perform the grand duty to-morrow we also be four white goats."

A tramp of two hundred yards to the southwest along this ridge and we reached the second couloir, the first four hundred feet of which is of shale and scree, then narrowing to a crooked stair of innumerable rock steps for the next six hundred feet, it finally ended on the second ledge at 7,600 feet; which we reached at two o'clock and found to be sloping and from five to twenty-five feet in width, with large overhanging yellow and black cliffs cut here and there by an occasional small waterfall. It was after completing this strenuous stretch that Conrad gave us a pointed bit of his philosophy, saying: "In my experience of about five hundred peaks, I find mountain climbing really sport of kings; the real success and the peak comes by simply putting one foot

in front of the other and always the second a little higher than the first"; and to this my legs said "Amen," for had we not been vigorously engaged in this kingly exercise for the last hour, but alas, though with much success, where was the peak? While resting on this ledge, Conrad was industrious as usual and found a very good specimen of fossil, but unfortunately we failed to stow it away and it was lost.

Working to the southwest for about half a mile along this narrow shelving ledge, we reached a couloir of Y-shape, the lower one hundred and fifty feet and the upper right-hand branch of two hundred and fifty feet serving as the course for a small spraying stream, which made the climbing very slippery and uncomfortable; but at 2.45 p.m. the third ledge was made at 8,000 feet, and here we found ourselves at the base of the wonderful rock-slide that shows so prominently all along the westerly side of Robson's northwest shoulder. The slide is composed of various sized boulders presenting a uniformly even face, lying at an angle of about thirty degrees; it seems to be two or three miles broad and has been calculated by the Director to be eighteen hundred feet on the slope. The sight of this huge mass of broken loose rock, fallen from the cliffs above, strongly impresses one with a realization of the constant terrible process of disintegration to which the "everlasting hills" are being subjected.

For an hour we worked along the base of this slide until the southern end was reached, where we found a broad, rather flat glacier with little or no névé or snowfield to feed it, although at one time it must have been of considerable extent, for it has three high lateral moraines on the north and two on the south side, and a high terminal moraine somewhat advanced from its forefoot. From here at about five hundred feet above the centre of the glacier, we could see the ledge on which

Walter, Darling and Prouty camped the night before their attempt on the "wish-bone" arête.

Tramping until 4.15 over the moraines and across the glacier, we reached the base of the "wish-bone" which looks so inviting as a route for an overhanging, strenuous rock ascent. The ledges and overhanging cliffs on both sides at its base afford a good sheltered camping spot, with water near at hand, but as the sky had become overcast, the weather decidedly threatening, and as the arête is long and essentially a good weather route, it was decided to try to make the southwest ridge leading down between the Grand and Little Forks of the Fraser River, and, if possible, camp at its base for the night. This, however, was not to be, for after rounding this arête and working along the ledges for a short distance beyond a second short broken arête, we had just reached the protection of some small overhanging ledges near a little watercourse at 5 o'clock, when heavy rain squalls struck us and, with the mountain enveloped in clouds, we were forced to camp there.

Narrative by Darling.

We crossed the foot of the arête on one of the lowest of the yellow bands, and made camp at an altitude of 8,000 feet, under some overhanging rocks, just before reaching the great couloir of the southwest face. It was then 5 p.m. and the weather very threatening. While we were building a wall round our respective sleeping quarters—our ledge was too narrow to permit more than two to sleep together in comfort—a gusty rain storm broke over us, with thunder and lightning, but our overhanging rocks protected us and kept us dry.

The outlook across the storm clouds, as they swept eastward, trailing mist and rain, here and there pierced by the defeated sun, and in places caught and held in black accumulated masses by the high peaks, was magnificent beyond words. Wild streamers of vapour

Photo, A. O. Wheeler

MT. ROBSON FROM SUMMIT OF LITTLE GRIZZLY SHOWING WEST AND SOUTHWEST FACES

Schauffelberger's line of ascent by West Arête, shown . . . . . Nights spent at x
Kain's line of ascent by Southwest Arête, shown – – – – – Night spent at +
Direction of ascents and descents shown by arrows

swept past us up the great couloir to join the ominous cloud that clung to the summit of Robson, and the mountain was soon cloaked from base to peak by grey shrouds of mist and rain. We turned in about 9 o'clock, after watching the wild weather until dark.

In the night it rained little and at times the stars shone, but on rising next morning, the sky was overcast, and a smother of mist filled the valleys below us. Our prospects seemed so unpromising that we dawdled over breakfast, and did not leave camp until 5.30. We then shouldered our packs and traversed across the couloir on the yellow bands, climbing slightly until at 8,600 feet we reached the glacier which descends southwest from the summit. The ice terminates at this altitude and stretches across the southwest face in a ragged wall, from which avalanches constantly thunder down the steep cliffs below.

The weather looked hopeless, and Walter declared it would be absurd to go on, but MacCarthy and I were keen to do so, and besought Conrad to continue upward, for a time at least. He and Walter thereupon held a brief parley in their mother tongue, and, I suspect, dwelt with scorn upon the hopeless unreason and stupidity of amateurs; but presuming, I am sure, that we should soon be quite satisfied to turn back, they agreed to ascend further.

We cached our sleeping bags in a cave, and at 7.30 began the ascent of the rocks which form the retaining wall of the glacier on the right side of its flow. They were fairly steep and covered with fresh snow, but Conrad set a break-neck pace, and we climbed 1,700 feet in the first hour.

At 10,500 feet or thereabouts, the ridge we were following vanished under towering walls of ice. Its disappearance was caused by one of the great terraces, which characterize the southwest glacier, rising above

the crest of the arête. The glacier, no longer held in check, overflowed its barrier, forming a great ice wall two hundred feet high, along the crest of the buried rocks. How far the wall extended toward the summit we could not tell, for in the mist that encompassed us, only the first fifty yards or so could be seen. Conrad and MacCarthy had learnt in their descent from the peak on the 31st July that the surface of the glacier at this point was too broken and crevassed to be attractive, so it was decided to ascend parallel to the ice wall and beneath it. The early stages of this proceeding were somewhat unpleasantly exciting, for the first fifty yards of the icy rampart overhung the mist-filled abysses on our left, and our course lay immediately beneath the overhanging ice. However, after some painfully slow and cautious movements, we reached a point where a steep rock buttress jutted out in advance of the ice and beyond the danger zone of avalanching séracs. We worked out upon the rocks, which, without their covering of new snow, would have been easy, and after ascending for one hundred feet or so, came upon a snow-covered ice slope, stretching upward into the mist. On our right we could still perceive the great ice cliff, mounting parallel to our course, but no longer overhanging it.

Narrative by MacCarthy.

The question of the termination of the upper end of this ice-wall, which we had been unable to observe on our first expedition, presented the one doubt in Conrad's mind as to the practicability of the route. But it was truly a case of Hobson's choice, so, with an encouraging reminder from Conrad of our "grand duty," we quickly worked a traverse along the snowy ledges of a couloir directly under this cold, forbidding, green buttress and soon reached the narrow ledges to the westward of the wall; there we encountered our first and only bit of chimney work of forty feet, made difficult because of the blanket of fresh snow that covered everything and which

prompted an observation from Conrad that this was the kind of chimney to "practise up, never down."

Gaining the ledges above, we saw, as far as the eye could pierce the storm, a broad, steep, rounded ice-slope covered here and there with light patches of snow and blocked along the right by the huge, broken ice-wall, while well above and to the left a short ridge of jagged rocks piercing the sky line seemed to offer the only refuge from the biting blast; so the weary step cutting began, at which after some time Conrad and Walter took turns at each shift of the course, until the rocks were reached, when we found them to be of little protection, for the wind and snow apparently came from all directions.

From this point, however, we thought we could see, not far above, the ice-wall burying itself in a mountain of snow, and it was pleasing to hear Conrad's cheery voice saying, "Gentlemen, we make our duty," and he immediately set out for the slopes above the wall, which we finally reached just as the snowfall became so heavy that our horizon narrowed to a small circle of a few feet about us. Here, almost waist deep in fresh snow, we rested until the storm somewhat abated and then pushed on and upward.

Narrative by Darling.

The mist was now very dense and snow was falling fast. The ice, however, was covered by a firm coating of snow under the fresh fall and little step-cutting was required, so we made rapid progress; and at 12,000 feet Conrad cried out: "Es gehen sure!" For once, I am sorry to say, he was mistaken. It did not.

At the moment he spoke, we were still sheltered from the worst of the storm by the west arête; but as we mounted higher, we rose above its protection, and the power of the blizzard increased ten-fold. The wind was bitter and blowing from the north, driving the falling

snow into our faces until we could hardly see. The lashes of my weather eye froze together and I could not face the storm. The cold became severe, congealing the moisture in our clothes until they were like suits of mail, and although the wind grew more and more powerful, the density of the mist did not relax for a moment. In fact, the veil about us was of such an unchanging whiteness and opacity that to our half-blinded vision, the snow underfoot and the enveloping mist became as one, until often it was only by feeling with our axes that we could ascertain the angle of the slopes we were ascending. When, however, the snow was pierced by the axe shafts, or disturbed by our feet, delicate blue shadows of exquisite and varying tones filled the depressions.

Except for the increasing velocity of the storm, the slopes we were ascending offered little difficulty and we made good progress. The ice-wall on our right had apparently merged into the general surface, though the mist prevented us from obtaining much idea of our surroundings. We came at length upon what was evidently the base of the summit ice cap. Its steep slopes forced us to our right, and in thus circling southward, we arrived at a bridged crevasse, which was recognized by both Conrad and MacCarthy as one they had crossed on their ascent on the 31st of July. We took shelter in a rift in the steep ice slopes beside us, and ate some sandwiches, our first food since breakfast. The barometer read 12,500 feet.

Having connected with the line of ascent followed by Conrad's party in their climb by the east face twelve days before, we had successfully established a new route, but I began to realize despondently that we could not reach the summit, now only five hundred feet above us, and was not surprised when Conrad declared that it would be too dangerous to go on. With his usual consideration, he expressed his sympathy for me in being a second time

turned back so near the top, explaining that it would be impossible to ascend the final slope in the face of the blizzard. We began to descend at 12.45, keenly disappointed, but fully agreeing with the wisdom of his decision.

Narrative by MacCarthy.

Thus at 12.30 p.m., less than six hours from the base of the arête where our cache was made, we had reached an altitude of 12,500 feet, were at the base of the ice-cap and less than six hundred feet below the peak itself, which we had scaled from this same point on the previous climb in less than two hours, and doubtless could have done again had the storm not worked itself into a veritable blizzard which blew directly across the precipitous line of ascent. A little protection was secured behind a buttress of ice, and here we kicked our feet and swung our arms to keep up a semblance of circulation, berating our luck at such abominable weather, and Darling vowing his luck to be so bad that if it ever rained soup he would be found with a fork in his pocket, to which sentiment Walter's sad countenance seemed to voice approval. While listening to Conrad's declaration that a guide on a climb should impart knowledge to the tourist so he might take away something more than bruises and sprains to remind him of his outing, we regaled ourselves with soggy, frozen sandwiches.

Not a dissenting voice was heard when Conrad reluctantly said we must turn back at once, for to go on would invite certain disaster, and delay at such an altitude under these conditions, in the hope that the storm would abate and it would clear, would be foolhardy. So at 12.45, covered with ice, chilled and stiff as our frozen ropes, we set out, and soon found that all traces of our tracks had been obliterated; but this seemed to matter little, for with no mark of any sort to guide him, and a horizon of not over twenty feet, Conrad apparently

chose his route by instinct, and after much groping and wallowing in the heavy snow we finally reached the edge of the snow-field and the beginning of the rounded ice-slope. Here also all signs of our steps were gone, and that meant the cutting of new ones and the laying of a course that would surely bring us between the ice-wall and the small rock-ridge, for to go to the right of the latter would have taken us into the dangers of an untried, unknown section, while to go to the left of the former would have put us on the much crevassed and freshly covered glacier that we had learned to avoid.

Soon after the descent on the ice-slope began I experienced a peculiar sensation, noting that I could not tell from looking at it which way the slope slanted. I frequently moved my ice-axe up and down and reached out to assure myself that I had my brake on the proper side. So novel and strange was the feeling that I spoke to Conrad about it, and was much relieved to hear him say that he experienced the same trouble, and he warned me not to lift my ice-axe, to drag it along the surface, and to keep my eye on his feet and the steps as much as possible. The only explanation I can offer for this phenomenon is that it was due to the incessant batting of the eyes, which in itself sometimes produces dizziness; the rapid blowing of snow across the surface of the ice, presenting the appearance of a rushing white stream; and the complete lack of any visible stationary objects by which to afford one a sense of distance, position and the relation of things. Labouring under this added difficulty, it was truly marvelous to see Conrad, during the occasional glimpses I had of him ten feet ahead of me, cutting steps and working his way down with that wonderful assurance that he never seems to lack under any circumstances, and that fills one with so much confidence in him; but his shout was one of joy when he finally made out our friendly jagged rocks a short distance below us, and we lost no time in taking as straight a

course as possible to their lee side in order to secure a moment of easy breathing and a little rest from the strain of the blast.

Narrative by Darling.

For a time we were in doubt as to our actual whereabouts, for our steps had been filled with wind-swept snow as soon as made, and not a vestige of our upward tracks was to be seen. Conrad and MacCarthy were on one rope and Walter and I on another, and we had to keep close together for fear of becoming separated in the relentless mist which limited the range of our vision to a radius of fifty feet. The stentorian roar of the storm made conversation impossible, except by the exchange of shouts at close range.

Without Conrad we might have gone badly astray, and I have never seen him to better advantage than during the descent of the first five hundred feet, cutting steps through the heavy fall of fresh snow, in the teeth of a blizzard that the rest of us could only fight against with averted faces, and yet finding his way without mistake. After many zig-zaggings, flounderings, halts and shouted consultations, we reached 12,000 feet, where landmarks began to appear, and from there on we made good progress. We followed the exact line of our ascent, and at 6.10 p.m. arrived without misadventure at the cave in which we had cached our sleeping bags.

After eating a sandwich and packing up our things, which had got very wet owing to a bad leak in the roof of the cave, we started down again, hoping to reach the hut on Lake Kinney, 5,000 feet below, before nightfall. Our path lay at first along the crest of the buttress jutting out into the valley of the Little Fork, just south of Lake Kinney. It soon, however, became necessary to take to the steep slopes descending to the lake. A chilly rain was falling steadily, our water-logged packs pulled unmercifully and the steep wet rocks called for neatness

and care. It was wearisome work, but the fear of a night in the open, drenched and tired as we were, spurred us downward as fast as our legs and safety would permit.

At 9 p.m. we reached the hut, just as the dusk blackened into night, and to our great delight found therein a stove and four dry blankets. We soon had a fire crackling and our wet clothes hung about it from every discoverable means of support. We then demolished most of the soggy remainder of our grub supply, together with many cups of steaming cocoa. About midnight we rolled up in a blanket apiece and, in spite of sundry discomforts, slept like logs. We had come down 9,000 feet of Robson in eight hours, fifteen minutes.

Next morning we were up at seven. It had stopped raining, so Conrad built a fire outside the hut and we spent several hours drying our things. The top of Robson was clear, but the weather looked unpromising, and in the afternoon, with that superfluity of naughtiness so characteristic of Robson weather, it turned thoroughly bad again. We packed up at 11 o'clock and set out for the railway, reaching the base camp at 12.30.

Of the two climbs we made, I look back upon the first attempt with the greater pleasure, and I feel sure that some day the west arête will become known as one of the finest rock climbs in Canada, and probably the most sporting route to the top of Robson. The line of ascent followed by us on the southwest face is comparatively simple and, therefore, rapid, and it is possible that the danger from the hanging ice may be avoided; but it cannot compare in interest with the stern aloofness of the west arête, and I hope that before long I may again be privileged to assault its gaunt upward-sweeping cliffs and stand at last upon the summit, that proudly-carried frosty crest so jealously guarded by its battlements and storms. In the meantime I have escaped the regret that walks with gratified desire and can indulge myself in happy dreams of the victorious day to come.

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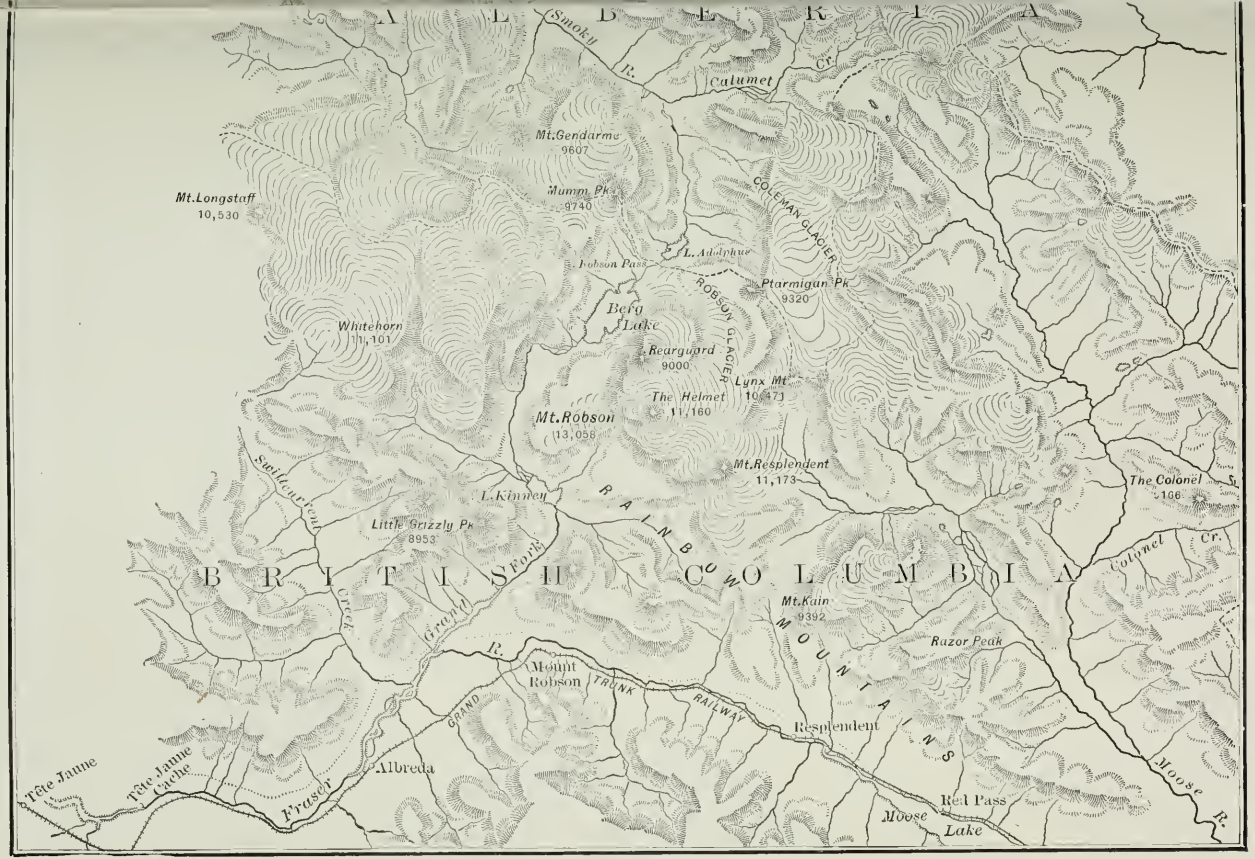

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TOPOGRAPHICAL MAP OF MT. ROBSON AND VICINITY

From a plate made by Scribner's

FIRST ASCENT OF MT. WHITEHORN

(August 12th, 1911)

By Conrad Kain

(Translated by P. A. W. Wallace.)

On the 12th of August I got off in good time, and went to the fly camp where I found Mr. Wheeler and Mr. Kinney at timber line, half an hour from the main camp. We waited there till ten o'clock and had to return on account of fog. I could stand it no longer, being among beautiful mountains without climbing one. I left camp at half-past one to climb Mt. Whitehorn. I went so fast that it would not have been possible to take anyone with me. I crossed the glacier to a moraine and followed the rocks, which led me directly to the pass. From there, I had to descend three hundred feet. After a very dangerous threading of the numerous crevasses, I reached the southwest ridge. Rain and thunder! I thought of turning back, but decided to go on, for I knew that it was my only opportunity to climb the mountain. I followed the ridge right to the summit without much difficulty. The climb reminded me very strongly of the scramble on Mt. Stephen. It was impossible for me to build a stone-man on the highest point; the peak is snow covered. At the first rocks I made a little stone-man, and wrote a few words on a paper:

"Conrad Kain, Führer von Wien, Bei Sturm, 11-8-1911"

—and afterwards I found that it was the 10th of August, my twenty-eighth birthday.

I folded the paper and put it in my match-holder, which I received as a present from Mr. Hollister. On one side of the match-holder it reads:

"With compliments from the Continental Oil Co. for 1903"; on the other side, scratched in with a penknife:

"N. Hollister."

I wrapped this in a handkerchief and put it in the stone-man. For greater precaution I laid a few stones together underneath an overhanging rock that protected this second stone-man from avalanches; because I knew that people would not believe that I had reached the summit.

The route of return was the same, but more dangerous. Before I came to the pass, the sun sank behind the mountains. I should have liked to see the sun two hours longer.

I thought that I could yet cross the glacier by daylight. To my astonishment, I found that the snow-bridge, which had brought me on the rocks, was broken. I had hard work to get on the glacier. I was quite helpless in the rain. I wanted to stay on the glacier overnight, but I could not stand it longer than ten minutes, and the cold warned me that I must go on, whatever happened. My one bit of good fortune was the lightning, which showed me the way. Step by step, I had to feel with the axe to find whether I were on the edge of a crevasse. Very often the axe fell right through and, more than once, I thought: "This is the last step." I tried again to stay overnight on the glacier, but in five minutes I would have been frozen stiff from head to foot. I felt indescribably glad when I found rocks under foot; I yodeled with delight.

The way from the rocks was already familiar to me, and no longer dangerous, but still very uncomfortable through the windfalls. At daybreak, I came into camp, in pouring rain. I found my supper by the fire, and ate it for breakfast. I laid aside all my wet clothing and, without a sound, went into the tent and to bed without disturbing anyone. I slept for a short time. Mr. Kinney felt in my bed to see if I was there. Without saying a word, he clapped me on the shoulder and I pointed in the direction of Whitehorn.

I had absolutely no pleasure in that climb. The time was too short and the dangers were too great. Two days later I went over the glacier and saw my tracks, and I think there was only one chance in a hundred of anyone coming through safe. I was appalled when I saw the dangerous crevasses. It was one of the craziest and most foolhardy undertakings that I ever made in the mountains, and all my life I shall remember the ascent of Whitehorn. As I found no stone-man or any other sign of man, I believe that it was the first ascent.

NOTE.—Two days after Conrad gave the above extracts from his notebook (August, 1913), Walter Schauffelberger's party returned from Whitehorn, bringing the Continental Oil Co.'s matchbox and the paper with Conrad's signature. It was found twenty or thirty feet below the summit.—P.A.W.W.

WHITEHORN
(1913)

By Walter Schauffelberger
(Translated by P. A. W. Wallace.)

A wonderful evening was setting in as we made our preparations at the main camp of the A.C.C. on Robson Pass for a new expedition, the ascent of Whitehorn. We intended that evening to reach another camp, an hour distant down the valley, by Berg Lake. At seven o'clock we left our friends and set out in the evening glow towards our bivouac. This lay on the left shore of Berg Lake and about 5,500 feet high.

At four o'clock in the morning came daybreak, and soon a hearty fire was flickering in the dawn. A good breakfast was prepared, and, at five o'clock, we left our bivouac, Messrs. Sissons, Darling, Westmorland and I.

Climbing steeply from the camping ground, through underbrush and over stones, we reached after an hour a point which may be recognized by four conspicuous trees on the left bank of the glacier. From here we traversed toward the cliffs, still through brush and slopes of grass, and crossed the glacier above the icefall in a southwesterly direction. As we were unhappily to learn, we turned too soon and got mixed up among large crevasses, which cost us much time and many a jump. But we reached the right bank of the glacier and stood, at nine o'clock in the morning, at the foot of the steep east wall of Whitehorn.

Two large glacier terraces were still before us. We made a short halt and took counsel whether we should ascend to Whitehorn Pass over the lower or upper terrace. We chose the second, and now climbed over large, but not dangerous fissures; and after we had crossed a final big bergschrund by cutting steps, we stood

at eleven o'clock on the summit of Whitehorn Pass. A new country here opened before us. Below, to the west, lay a glacier surrounded by a few respectable mountain peaks. We took a long rest on the pass and ate some of our provisions to restore our strength. At first we thought we could climb the rock ridge that comes down from Whitehorn on the north, but the rocks were too steep and would have cost us much time. We decided to outflank these cliffs on the northwest and win the southwest ridge of Whitehorn.

After thirty minutes rest, we started off and climbed down about three hundred feet. Between the north ridge and the southwest ridge descends a large, steep glacier, and we now made for this, crossing between many large crevasses, sometimes getting over them on snowbridges, sometimes going right into the crevasses themselves. We reached, after two hours, the beginning of the southwest ridge of Whitehorn. It did not make the best impression upon me, and seemed to require a great deal of step cutting; but, after we had crossed the crest of the ridge, we saw that we could climb the rocks on the south side.

First, we took another rest of fifteen minutes, ate a little of our provisions and, shortly before two o'clock, began the ascent. It was the final attack on Whitehorn. On the rocks we made pretty good speed, and after an hour stood about two hundred feet beneath the final tower of the peak. A steep wall forced us to take the edge of the ridge and a few steps in solid ice were necessary. Then we scrambled through a ten-foot chimney that was not easy and, after a few minutes, we stood on the summit of Whitehorn.

The view that we enjoyed was sublimely beautiful, and many still untrodden peaks beckoned to us. Marvellous also was the view towards the three glaciers lying deep below us. We enjoyed the customary summit pipe for a little while and, all too soon, we had to forsake our lofty station.

The descent, which, except for the chimney, offered no noteworthy difficulties, was rapid; soon we reached the foot of the southwest ridge, crossed over, and descending though the crevasses, at five o'clock in the evening reached the foot of the north ridge. Here again we had to re-ascend three hundred feet to Whitehorn Pass. Meanwhile the sun went slowly to rest. The surrounding mountains were coloured in the last pink of evening when we stood once more on Whitehorn Pass. After fastening in our eyes a good descent over the glacier, we got down the glacier terrace to the central moraine and halted.

It was half-past eight in the evening, and darkness was swiftly falling. Our plan to reach the camp by Berg Lake that night had to be given up, for the descent of the moraine was very difficult at night, and we gave up crossing the glacier, whose crevasses were not inconsiderable. So down we went to the nearest trees, where we prepared a camping place. Before long a hearty blaze shot out into the dark night. Each one of us made himself as comfortable as he could, and we divided the last scant remains of the provisions.

At half-past three in the morning we broke camp and descended to the glacier, which at first seemed to offer good going; but it was soon to be otherwise. We got among large, steep ice clefts, and had to open a way for ourselves by step-cutting. At last we reached the other bank of the glacier, and stood once more on familiar ground. In a short time we reached the camp by Berg Lake, where we did not stop long, but went straight on to the camp on Robson Pass, which we reached just at breakfast time. A successful, though long expedition, had come to an end.

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Photo, Byron Harmon

WHITEHORN FROM FOOT OF ROBSON GLACIER

A DAY AND NIGHT ON WHITEHORN
(1913)

By W. E. Stone

Next to Mt. Robson, the most conspicuous feature of the landscape about Robson Pass is the peak of Whitehorn. Its isolation, its symmetrical form arising above the long wall of black cliffs, as seen from the north, its dazzling whiteness, particularly on the northwesterly slope, attract attention from every elevated viewpoint in the region. Especially striking is its appearance as seen from the lower part of the Robson Glacier or from the flats below Berg Lake. Owing to its distance from camp only two parties from the Alpine Club made the ascent during 1913. The first, consisting of Messrs. Darling, Sissons and Westmorland, with the guide Walter Schauffelberger, reached the summit on August 1st after a long and by no means easy climb. They reported finding evidence of the first ascent by Conrad Kain in 1911.

A second expedition left camp late on the afternoon of August 3rd intending to bivouac for the night at the foot of the flats below Berg Lake. Accompanying them were Messrs. Darling, Prouty, and the guide Schauffelberger, who were to attempt the ascent of Robson the next day. The camping place where we were to spend the night endeared itself to all who came and went during our stay at Robson Pass. The embers of its fire were rarely extinguished and its hospitality cheered all who passed up and down the trail. Happily unaware of the trials awaiting them, the Whitehorn party felt the seriousness of the task before the Robson aspirants and wished for them, quite as much as for themselves, fair weather and good climbing on the morrow.

At daybreak the following morning, a light rain was falling, and the early start which had been planned was delayed until six o'clock, when, the skies becoming propitious, we took leave of the Robson party and set out, skirting the burned-over slopes to the northwest and working around into the beautiful hanging valley overlooking the glacier lying at the eastern base of Whitehorn. Here the interesting display of Alpine plants was worth a longer pause than we could spare. The blue lupine was abundant, although past its flowering stage, and, so far as reported, this was the only locality in the vicinity of the Robson camp where the beautiful plant was found.

From this point the aspect of Whitehorn was forbidding indeed. Starting high above the valley of the Grand Fork, an unbroken rampart of lofty and perpendicular cliffs extended to the northwest and north, effectively defending the sharp peak from attack from this side. Between us and these cliffs lay a glacier of no mean dimensions. Arising among the peaks to the north, it skirts the eastern cliffs of Whitehorn, from which it receives the débris for the formation of enormous lateral moraines, and discharges into the Valley of a Thousand Falls. Its narrow tongue descends far into the head of the canyon, and can be seen from a point on the trail below the falls, but the glacier itself, owing to its elevation, is not visible from the valley.

Our route led across this glacier towards the long flanking ridge extending north from Whitehorn, which it was necessary to cross in order to reach the westerly slope of the mountain. We immediately roped up in three parties, of which the first consisted of Conrad, the guide, Miss Wilcox, Miss Broadbent and H. M. Johnson; the second of L. C. Wilson, Miss DeBeck, Miss Fowler and A. R. Hart; and the third of H. O. Frind, F. S. Bourne and the writer. The glacier was badly crevassed, and we made slow progress.

Presently the weather repudiated its fair morning promise with unmistakable rain and low hanging clouds, but just as our backs were beginning to feel comfortably moist, the blue sky appeared and again we went forward. A depression in the skyline of the ridge gave promise of a practicable pass, and on reaching the foot of the cliffs, it was found possible to work our way up a series of benches rising gradually from the lower glacier, although the route was threatened by massive overhanging ice walls, and all breathed more freely when we finally came out upon the snow at the summit of the pass.

Now for the first time we saw, as we turned our eyes to the southward, the real Whitehorn; its grim and repellent eastern aspect giving place to one of beauty as we looked upon its magnificent northwesterly slope completely buried in the gleaming snow. From this point also there was a fine view of Mt. Longstaff across the broad glacier filling the valley at our feet and rising among the group of peaks to the north. This sudden and unexpected glimpse into a new and unexplored region stretching away for miles to the westward was one of those experiences which reward the mountaineer for his efforts and fire his ambition anew. One never regrets his limitations more than at such a moment.

After a lunch we descended on the west side of the ridge in a southerly direction, reaching the foot of the northwestern slope of Whitehorn, which we crossed diagonally upward toward the western arête. This face of the mountain is undoubtedly the most interesting and beautiful, being entirely covered with snow to the very summit and broken with enormous séracs. We found the snow softened by the rain and mild weather, but otherwise had no difficulty, and crossing the bergschrund stood upon the sharp crest of the westerly arête soon after one o'clock.

Although we had been climbing up or down fully

seven hours, we now for the first time were facing directly toward our goal, having skirted the mountain for half its circumference, crossed two glaciers, traversed one and attained the crest of the second of the four ridges which flank the peak. From this point we were overlooking the third or southwesterly face of the mountain, convexly hollowed, banded by horizontal strata, which were emphasized by snow banks lying at their bases, and descending to a snowfield draining into the glacier already mentioned, lying between Whitehorn and Longstaff. This face of the mountain is not unlike the westerly face of Robson, although not so precipitous.

Whitehorn is roughly a pyramid in form, the four angles of which extend toward the cardinal points of the compass. The eastern ridge projects toward Mt. Robson at right angles with the Valley of a Thousand Falls, its high rocky terminus showing conspicuously from the Grank Fork trail and cutting off the view of the peak itself from the valley. The north ridge extends toward the group of peaks lying to the northwest of Berg Lake, of which Mumm Peak is the northeastern terminus. The westerly ridge slopes rapidly down toward the Whitehorn-Longstaff glacier. The south ridge seems to become confluent with the peaks on the west side of Lake Kinney, of which Little Grizzly is the most conspicuous.* Between these four ridges lie four glaciers, those to the northeast draining into the Grand Fork above Lake Kinney, and those to the northwest and southwest discharging into the Swift Current Valley. Of the latter, the one on the southwest face is the least. The other three are extensive, from one to three or four miles in length, and exhibit all the features of glacial phenomena. The one lying on the northwest face of the mountain merges into the extensive glacier lying between Whitehorn and

*See Canadian Alpine Journal, 1910, page 32, for a view of the eastern side of Whitehorn, taken by G. B. Kinney from Robson and referred as Mt. Turner.

Longstaff, which, after the assembling of its various branches reaching away into the peaks to the north and northwest, extends in a straight line a mile or two toward the southwest with two or three medial moraines conspicuously striping its surface for the entire distance. It appears to end very abruptly at the brink of the canyon in which the headwaters of Swift Current Creek arise. Without doubt this whole basin and the peaks around it would be a most attractive field for exploration.

Dropping over the edge of the arête into the shelter of the sunlit rocks on its southern side, we rested, lunched and gazed for a little space at the indescribable scene before us, wandering in imagination over the countless mountains and valleys which led our fancy on and on into the unknown wilderness. But we dared not delay, for the real ascent was still before us, and the sun already considerably past the meridian. The weather was now favorable, the sky free of clouds and the temperature agreeable for the exertion of climbing.

The westerly arête, up which we proceeded, is narrow, with a steep snow-covered slope on the north. On the south the bare rocks admit some freedom of movement away from the ridge itself, but we kept mostly near the crest of the arête and, except in a few places, found easy climbing, alternating from snow to rock. We encountered no ice and the ropes were unnecessary, save in one or two places. On account of the size of the party we progressed slowly. Occasionally the melting snow revealed the blurred footprints of the party of August 1st. Just below the summit we left the arête and, rounding a shoulder of rock, crept up a wet couloir on to the snowcap where Conrad's more speedy rope awaited us impatiently.

At 4.45 p.m. we stood upon the summit, which afforded here standing room for one or two persons, ending in a cornice beyond which there seems to be a straight drop to the cliffs and glacier. The view was superb, the

slanting rays of the afternoon sun intensifying the shadows of the deep valleys. To the northwest rose Longstaff and a group of untrodden snow-peaks. To the northeast the eye caught the gleam of the waters of Berg Lake and Lake Adolphus and the far peaks beyond the Smoky River Valley. Across the canyon of the Grand Fork stood the awe-inspiring mass of Mt. Robson, seeming almost within reach and yet remote and inscrutable in its inaccessibility. To the south the verdant masses enclosing Lake Kinney were a foreground for the distant view beyond the valley of the Fraser, with countless peaks among which great snow-white monarchs lifted up their crowns.

Then we realized that camp was ten hours distant and nightfall at hand.

Conrad proposed a traverse of the mountain and a descent on the southeast side as the nearest route to timber and possible shelter for the night. He led his rope from the summit directly down the steep snow-slope toward the southeast glacier, directing the other two ropes to proceed down the south arête. This ridge is narrow, falling away perpendicularly on either hand, frequently broken by benches and abrupt descents. Little snow was encountered, but the rock was very rotten, the strata lying with a downward pitch, making foot and hand holds exceedingly precarious. It was frequently necessary to rope off the steep places, while the continual bombardment of falling stones added not a little to the excitement and danger. This approach to the summit is much more difficult and dangerous than the westerly arête, and has little to commend it as a route for either ascent or descent.

One and one-half hours from the summit we reached a snow-saddle and turned aside for the descent to the southeast glacier. The snow lies here at a very steep angle, and under certain conditions would be quite

Photo, B. S. Darling

THE PASS AND NORTH FACE OF WHITEHORN

Photo, B. S. Darling

MT. LONGSTAFF FROM SUMMIT OF WHITEHORN

impassable, but it was already stiffening in the cold of early evening, and we went down backwards in deep steps without mishap. Far below, Conrad's rope, having found the descent on the snow more rapid than our rocky route, were awaiting us in the chill twilight.

Finally, we were all assembled and proceeded with some difficulty to pick our way down the avalanche-scarred snowfield. The very spot where we stood, which seemed an innocent terrace in the steep slope, proved to be the roof of a marvelous ice cavern. Even in the gathering darkness the formation of its ice-hang chambers fascinated us and it was with regret that we turned away with only a hurried glance.

Here, as on the northwesterly slope of the mountain, the séracs and crevasses were magnificent in extent. One could imagine some wonderful and impressive phenomena at times owing to the immense quantity of snow and the steepness of the slope. It was slow and careful work to find our way safely through the maze of crevasses, and by the time we had descended to the more level icefield, the darkness had obscured all details of the glacier surface and it became necessary to proceed with the utmost caution. By this time daylight had vanished and we had only the half light of the snow to relieve the darkness. The evening glow on Robson's summit was long gone, and our anxiety grew in proportion to the difficulties of the situation. Conrad's skill or instinct in avoiding the crevasses is best evidenced by the fact that for an hour or more we hastened down over this unknown glacier without mishap or appreciable delay.

After a time we could discern the approach to the brink of the valley, of whose precipitous walls we had a vague recollection as seen from the Robson trail below. It was nearly eleven o'clock. Further descent into the valley and the possible shelter of timber for which we had hoped was, on account of the nature of the ground, out of

the question. Leaving the glacier and clambering over the débris of the left lateral moraine, we found ourselves perched among the rocks of the high projecting shoulder of the mountain overlooking the Valley of a Thousand Falls.

"Here we sleep," said Conrad laconically. How gladly would we have obeyed his injunction. Scattered among the bare rocks like marmots, each sought some shred of comfort for the night. Only the crumbs of our mid-day standard lunch for supper; only the ordinary clothing of the climber's "irreducible minimum" for shelter, with wet feet, with couches of broken stone molded to fit the form by a few strokes of the ice axe; we lacked none of the elements of discomfort, but all were philosophical and uncomplaining. Fortunately, the night was clear with little wind and only moderately cold. No one slept.

All through the dark hours one could hear strange murmurings from among the rocks. In the art of whiling away the hours in conversation, the ladies were proficient as usual.

I recall some meditations on the beauty of the starlit heavens and the strangeness of the situation. Now and then from the glacier below came sounds of ice masses breaking loose and crashing down into the valley. The black gulf at our feet was penetrated by the distant roar of falling waters. On the far side rose the immense bulk of Robson, a shadowy mass against the sky. Somewhere away up there among the cliffs our last night's companions were lying among the rocks in waiting for the morrow's assault. It was wonderful and inspiring to be a part of the grand ensemble of night and sky and mountains; an experience of a whole lifetime.

But the sharp stones, the cold and the very tangible discomforts of the situation kept one from wandering too far in his fancies. If one dozed for an instant, he was awakened by his shivering limbs and chattering teeth.

To move about in the darkness was impossible. My final diversion was to study the east for the first sign of dawn. The morning star came up aglow and cheering. Gradually, one could discern a faint increase of light in the eastern sky. The sun must have felt the pull of our intense longing for his appearance.

At last our gloom-accustomed eyes could make out the boldest outlines of our surroundings, and at four o'clock we were on the move, scrambling and sliding down the scree slopes to the terrace above the Valley of a Thousand Falls. A direct descent to the Robson trail was impossible owing to the precipitous walls of the intervening canyon. It was necessary, therefore, to follow up the west side of the valley to its head, cross the glacier and regain our trail of yesterday in the hanging valley of flowers. Five hours from our night eyrie was necessary to accomplish this, the most tedious and uninspiring stage of the whole trip. Most of the way our route led over loose rock and moraines and the badly crevassed lower part of the northeast glacier.

The chances for breakfast seemed rather poor, but, while halting to drink from a stream, some one produced five sandwiches which had escaped the exigencies of the famine. There was an inspired reference to the example of the five loaves and the multitude, but by no miracle could the simile be further extended to our case, and we trudged on cheered by what the Chinese would do for us if we ever reached the main camp.

By 9.30 we were all around the fire at the bivouac, with tea and biscuits in abundance after an absence of twenty-seven and one-half hours. A brief rest, a snatch of sleep in the warm sunshine and all found their way back to the main camp, where the Director assured us we were now initiated into the ranks of real mountaineers by reason of having "spent the night on a mountain."

Surrounded as the mountain is by glaciers, holding suitable camping grounds at a distance from the south and west ridges, which afford the only practicable route, the ascent of Whitehorn, while not difficult, requires for even rapid climbers a day of long hours and strenuous efforts. A day and a night enabled our party to make a complete circuit of the mountain, traverse the summit, cross its four flanking ridges and explore its three principal glaciers.

Note—Dr. Stone refers to the ascent having been made by the western arête. This is the route travelled by Schauffelberger's party, and referred to by him as the southwest arête.—Editor.

MOUNT RESPLENDENT AND THE ROUTES OF ASCENT (1913)

By C. H. Mitchell

No wonder Professor Coleman called it Resplendent. o one who has approached the mountain from the north, ; he did, for the first time, going up the Smoky River lley on a bright, sunny day, could fail to choose some ch name of brilliant, lustrous splendour. At the head the verdant valley, carpeted with meadows and wers, appears to stand this gleaming pyramid closing te symmetrical V of the hillsides and pointing avenward, its unbroken faces glistening in the sun.

Were it not for the great Robson, huge and white, ddenly appearing at the bend as one nears the summit the Smoky Valley, Resplendent, the second highest of te region, would stand prominent amongst the ountains; but, of course, Robson towering high above em all, dwarfs even the 11,173 feet of Resplendent, ntwithstanding its beauty; and when one gets to the ss itself there is but the one great scene—wonderful bson with its affectionately encircling glacier guarding i eastern flank and the beautiful Berg Lake laving its ot.

Mt. Resplendent cannot be seen from Robson Pass, r in fact from any nearby position until one gets well u the Robson Glacier. The other distant valley views, s far as the writer is aware, are two only. One is from tl West Branch of Moose River, described by Mr. A. O. Wheeler in the Canadian Alpine Journal, 1912, where, lcking westward at the mountain, it "here rises in great b ck precipices," whilst the beautiful valley in the fceground he named "Resplendent," truly in keeping wh its great bulwark.

The other view is from the Fraser Valley, near Mile 40 on the transcontinental railway lines, and a couple of miles below Grand Fork, where on a bright afternoon the writer again saw Resplendent standing out majestically white above its neighbors. Here Robson is practically cut off from view by intervening peaks in the Fraser Valley, and Resplendent so attracts the eye that it will be surprising if the Railway Companies do not in some manner take advantage of this convenient view point, where at the same time, away to the north, the tip of Whitehorn can also be discerned. It is to be noted in passing that the present so named station of Resplendent on the Grand Trunk Pacific, whilst close to the mountain (six miles as the crow flies), has no view of the mountain itself, and it is only by going eight or ten miles farther down the valley that even the tip can be seen.

Mt. Resplendent appears to be reasonably accessible only from the north, via Robson Glacier, although it is likely as mountaineering proceeds in this fascinating region that daring climbers may find a way from the south and east. The west face may possibly become a route from Lake Kinney up the Little Fork as far as the "9700" pass, as being shorter from the railway than via Robson Pass and Glacier. It is to be expected, however, that for some years to come mountaineers are more likely to make Robson Pass their climbing base than Lake Kinney, as it affords a more attractive location for other climbs as well. The routes of ascent for Mt. Resplenden described in this article are consequently confined t those from Robson Pass, which is now so easily accessibl by pack trail from Robson Station on the Grand Trunk Pacific, via Lake Kinney, the Valley of a Thousand Fall and Berg Lake.

Previous to the establishment of the August, 191 camp of the Alpine Club of Canada at Robson Pass, M Resplendent had been ascended only once. This firs ascent was by Mr. Byron Harmon and Conrad Kain, th

Photo, Byron Harmon

MT. RESPLENDENT FROM ROBSON GLACIER
The Alternative Routes

Photo, C. H. Mitchell

THE SNOW ROUTE UP MT. RESPLENDENT
Head of Robson Cirque

Club's mountain guide, from Robson Pass during the expedition to this region organized by the Alpine Club of Canada under the direction of Mr. A. O. Wheeler in 1911. The second ascent was from the Club's camp at Robson Pass in July, 1913, also guided by Conrad Kain, the party being composed of Dr. W. E. Stone, Miss D. A. Broadbent (the first lady) and Mr. H. O. Frind. Two days later, under the guidance of Walter Schauffelberger, the Club's Swiss guide, Messrs. John Watt, H. H. Prouty (of the Mazamas), and the writer, made the third ascent though by a different route (going up the route on which Dr. Stone's party descended). Subsequently several other parties from the Club camp made the ascent, but all by the same route as the first party.

In general it may be said that the mountain is an easy climb, if one is content to go and come via the glacier and névé throughout. If, however, the combination comprising the rock and ice arête is included in the ascent, as will be described later, the day's work will take on a different character and be exciting as well as somewhat more arduous than if confined to the snow.

In describing these two routes reference is made to the map herewith and to the lettered photograph showing the general view of the mountain from Robson Glacier.

The route of ascent first followed by Harmon and Conrad and all the other subsequent ascents (except the third) is the route marked A B C—H G F, or the all-snow route. The route followed in the third ascent (by Watt, Prouty and the writer, with Schauffelberger) is that marked A B C—D E F, or the rock and ice arête route. The latter is also the route by which the second party (Dr. Stone's) descended.

The Snow Route

Leaving the camp at the timber in Robson Pass near the head of Berg Lake, the easiest route by which to get on the glacier is to make for the great rock hummock

which splits the glacier tongue. Keeping it close on the left, pass between it and the glacier torrent issuing from the ice cave; this will bring one up on the glacier snout without necessitating crossing the torrent which traverses the front of the glacier westerly from this point. Once on the ice, bear straight for the Extinguisher, a high triangular rock which appears prominently at the curve of the glacier above the icefall and distant about four miles. A generally straight and direct route can be followed for about three miles, making such slight detours during the first half mile as will be found necessary to cross the longitudinal crevasses near the glacier snout. These can be readily crossed, generally by utilizing the tongues between and leaping them. It is not necessary to rope until further up.

The first three miles on the glacier will be found to be singularly easy going, as the slope is very slight and the surface smooth, being broken only by shallow ice streamlets and small furrows which can be readily stepped across in the ordinary process of walking. Fast time can and should be made on this stretch, and at six o'clock of a bright summer morning what could be more exhilarating than romping across this wonderful river of ice between the great snow-peaks? A glacier a mile wide and five miles long—a great ice avenue leading to the glistening cirque at its head. An amusing incident illustrating the easy going on the glacier and its early morning exhilaration occurred on the occasion of the writer's ascent of Resplendent when, at a four mile clip, passing abreast of a mixed party bound for Coleman Glacier, via Snowbird Pass, we hailed them at several hundred yards distance. They quaintly replied: "We are the Snowbird Express, who are you?" Back went our answer: "The Resplendent Limited."

When the icefall is reached time must be saved by passing around to the left (east) and the fun of crossing it kept for another day's expedition, when time and

energy are not wanted for more serious work. The course bears well to the left until almost even with the down side face of the Extinguisher, which is then passed within a couple of hundred yards. It was at this point that the first night's camp was made by the successful party (Foster, MacCarthy and Conrad) which climbed Mt. Robson. Two of our party on Resplendent on July 31st (Watt and the writer) were of the supporting party which had helped make this camp the previous afternoon; so that we were especially interested in examining the bivouac as we passed early this morning to see how they had fared and whether they had left any message. They had evidently spent a comfortable night despite their icy bed, and their still smouldering fire betokened a proper breakfast. We saw their tracks across the glacier ahead of us.

Beyond the Extinguisher the snow begins to get soft and the party must rope. The glacier appears to be but little crevassed, though such openings as exist are smothered with snow which requires caution. The Extinguisher is about two hours from camp at the pass and another half hour brings us to the parting of the routes at C, the right hand one following the snow, while the left bears toward the rock arête.

Continuing the ascent up the snow and into the heart of the cirque (shown dotted in the accompanying map) the going is very easy until the steep snow-slopes at the head of the cirque are reached. These are ascended by bearing well to the right and closely hugging the base of the steep ice faces of "The Dome." A continuous ascent now commences; a couple of hours for about a mile and a half and, perhaps, two thousand feet. A few great crevasses are to be crossed about a third of the way up, but routes over gigantic snow-bridges and along tongues can be readily discerned. After these crevasses are passed the route bears gradually to the left away from the Dome and, upon reaching the well defined crest of

the snow-slopes, a huge snow-field is found with the "9700" pass on the right and the glistening summit of Resplendent straight in front—almost due east.

On emerging from this great snow valley—it is too huge to be called a couloir—a wondrous view unfolds. Looking back from the point G, down the route we have come, the gigantic glacier sweeps away in a great curve below us and is lost behind the Rearguard. On the left stands the Dome in the foreground, the Helmet in the distance and, above all, the great Robson peak still towers.

An easy slope across the snow-field leads to the base of the final steep snow-dome which forms the glistening summit of Resplendent. Here, at the point marked F, the snow route is joined by the arête route, and it will be found that about six hours have elapsed since leaving camp.

The Arête Route

Leaving the main route at the point marked C, bear sharply to the left (east) and get on to the lower end of the rock arête which comes down to meet the glacier from a rock mass flanking the north side of Resplendent and which intervenes between it and Lynx Mt. The Extinguisher forms the lower extremity of this rock mass.

Once on the rock arête there is a continuous ascent for about two hours, all rock climbing. At several places on the lower slopes of this arête, scree will be found to be overlying ice and the ascent is difficult, even dangerous. From time to time small rock peaks are met with, and it will be found easier and more economical of time to pass to the right (west) of these, working along the cliff faces below which lies another great snow-valley, similar to, but smaller than, the one followed in the snow route. The passage of the buttresses on this side of the arête requires extreme care in some places, largely due to rotten rock.

Photo, C. H. Mitchell

THE ICE ARÊTE
Summit of Mt. Resplendent at Right

From the summit of the rock arête D an interesting panorama is disclosed — more interesting than at a higher elevation because there is still a sky line broken by the great surrounding peaks. Looking back at the camp the curve of Robson Glacier looks like a great, smooth, placid river and, as it passes below us, the Extinguisher seems but a boulder on its shores. Turning to the right stands Lynx Mt., then further to the right and due east below, under the great cliff, unfolds beautiful Resplendent Valley where it is promised the A.C.C. will some day have a summer camp. Turning to the south, Resplendent stands out with its great dome precipitously steep on the east and with an encircling, sloping snow-field at its base, in front (north), and on the west. Further to the right and around to the west are the "9700" pass, the Dome, Robson and the Helmet, flanked by the great glaciers and snow-slopes which drop down to the cirque.

Looking southward, against Resplendent, the intervening space presents an interesting study for the mountaineer. We are still about three hours from the summit and have been five hours from camp. In the immediate foreground is an immense depression E in the long arête—a saddle, the near side being of rocky crags, and the opposite of glistening snow and ice, overhung on the left (east) with a cornice, casting its shadows far down the precipitous slopes into Resplendent Valley. This saddle has to be traversed. The rocky side (north) requires care and time. A rest is due at the bottom, say for lunch if it has not already been taken at the arête summit. The climb up the ice arête takes still more time and care; steps have to be cut and the course laid in a straight and narrow way between the cornice on the left and the fifty-five degree snow-slope on the right. The total rise from the saddle is, perhaps, four hundred feet before the snow-field is reached on the opposite side, and then the

going is comparatively easy except for soft snow due to a warm sun. Two hours from the summit of the rock arête takes us to the base of the snow dome at the junction with the snow route at F.

The climb up the forty-degree slopes of the snow dome—perhaps 1,200 feet—takes an other hour and is without particular incident except the usual thrills of the climber when he is nearing the summit of his peak, expecting that with every convex crest he reaches he will assuredly see the actual summit.

The summit itself is unique. It consists of a snow and ice knife-like horn, precipitous on the east side but without a cornice and having a snow-slope of about sixty degrees on the western face. The actual top might be said to be roughly about four feet by twenty feet, just large enough to "accommodate" about one rope of four or five. At the time the writer's party was there the day was clear with an almost cloudless sky and a bright, hot sun, a rare combination of weather for this region, so that photographs were at a premium. Changing a film in a camera perched on this ice edge in an icy breeze, despite the sun, was an interesting, almost ludicrous proceeding, and engaged at once the attention of several of our party.

The three unique features of the view from the summit of Resplendent are: the great expanse of mountain peaks for many miles radius, the view down the Fraser River and the almost near view of the great Robson itself, still towering two thousand feet above Resplendent, though the latter is the next highest peak.

The view of the Fraser Valley is one which will always be seen from this peak with special interest, as there is so much of the human element to be picked out, especially as the future develops it into a great highway to the sea. The Fraser itself with the Grand Fork shimmering in the sun, and the two railway lines winding

Photo, Byron Harmon

SUMMIT OF MT. RESPLENDENT
The Ice Horn

along the hillside like two white cords, curving now away now close to each other and all lost to view as they turn northward to Tête Jaune Cache, together form a scene which the writer will long remember and will compare in impressions with future climbers on this favourite peak.

But the view of greatest interest is that of Mt. Robson, and especially was it so on this day, July 31st, when at the same hour (4 p.m.) that the writer's party was at the summit of Resplendent, the successful A.C.C. party of Messrs. Foster and MacCarthy, with Conrad, were within an hour and a half of the summit of Robson. We eagerly scanned the faces and arêtes of Robson from hour to hour during the day, but how absurd it seemed when we stopped to think, for the two peaks are four miles apart. The view of Robson from Resplendent presents arêtes and faces which cannot from elsewhere be seen and, in conjunction with the photographs from the opposite and more accessible directions, affords the closure of the circle of viewpoints of this vast mountain.

The descent from Resplendent is best and easiest by the snow route as described. A good portion of the uppermost dome can be glissaded, as well as the steeper upper slopes of the cirque. Once on the lower slopes of the cirque rapid walking progress can be made. After two hours of rapid descent the remaining four mile stretch of dry glacier from the Extinguisher to the camp at Robson Pass can be readily made in one hour.

THE WHIRLPOOL
(1913)

Part I

By Geoffrey E. Howard

My hurried glimpse of Jasper on the way west to Robson had made me anxious to pursue my acquaintance with that outpost of civilization. The station breakfast-counter and its occupants savoured of the mining camp of the novelist and the scattered shanties, many of them with canvas roofs, had heightened my curiosity. Consequently the prospect of a day there was one which I regarded with pleasurable interest as I bade farewell to my many delightful friends from Robson Camp who pursued their journey eastward, leaving me standing by my somewhat disreputable baggage as the train steamed away—goodness knows how many hours late. A. L. Mumm and his *fidus Achates*, Moritz Inderbinen of Zermatt, were meanwhile exchanging enthusiastic greetings with John Yates, and in a few minutes we were consuming a famous breakfast beneath the hospitable roof of Stevenson's one-storied wooden hotel.

Personally I felt as the possessor of newly-acquired millions must feel on finding himself in a great city—monarch of all he surveys. I had no plans, but here I was in the midst of mountains of which practically nothing was known, and Fred Stephens with a bunch of horses was hastening down the Miette to bear me, like the magic carpet, whithersoever I would. Mumm, on the other hand, had a fixed objective, namely to try to encircle Mt. Geikie and if possible climb it, and as the rain poured down steadily all day and we consequently spent the hours in discussing his plans, my attention developed into interest, interest into enthusiasm, and

when he invited me to bear him company as far as my rather limited time would allow, I jumped at the suggestion. Theoretically, to have no plans is very delightful; it produces a sensation of airy detachment, which is a form of mental intoxication; but to be presented with a fascinating programme and a delightful companion in the same breath brings one to earth again with the conviction that the earth is an extremely pleasant place.

So it was arranged that we should journey southward along the Athabaska Valley together, a proposition which found much favour with John Yates and Fred Stephens. The latter did not appear till the following day, but meanwhile, the rain slackening somewhat, we made pilgrimage round the "Town," usually winding up at the Pool Saloon where picturesque persons in high boots politely regaled us with tall stories and soft drinks.

Our enthusiasm for Jasper began to wane when next morning revealed itself as another "souser," but we spent a most profitable day in the acquisition of a vast store of "information" about our route. It is true that as far as an extension of our knowledge of local topography was concerned, our bag was small, but we were deeply impressed with the genuine desire to be useful which actuated every man in Jasper. It appeared that Alberta was pretty thickly populated with people who had made repeated trips round Geikie and had given detailed accounts of their travels to every inhabitant of Jasper. It was a coincidence that none of these travellers happened to be on the spot. We regretted this very much, as they must be an interesting body of men. One, for instance, had found a trail for the first fifty miles, so well cleared as to be worthy of the description of a "Boulevard"; another had found the timber so terrible that progress was an impossibility; another had made good progress for three days up such and such a "draw," but had omitted to mention where it lead or what he saw from

the end. Old Swift himself, that prince of pioneers, who has lived hereabouts for seventeen years, had much to tell us at second hand of those colossal giants, Brown and Hooker, at the headwaters of the Whirlpool. But, indeed, to information of every variety there was no end at all.

We were bewildered men as we catalogued our store of knowledge that night. Surely Coleman, with the heartlessness of Procrustes, had shorn Brown and Hooker of most of their 17,000 feet years ago. Surely so many observant travellers as we had that day heard of in their progress in the Geikie region could not have been perennially intoxicated. Surely—well—"Let us go and see for ourselves," quoth we; and so to bed.

Next day—more rain; but after dinner, we did make a start and a most imposing cavalcade we were. John and his two packers, Fred and his two, Mumm, Moritz and myself, with the almost imperial number of twenty-six horses. We did not, of course, need all these, but you cannot leave odd members of a "bunch" to stay casually behind, so they all came along. A kind friend conducted us over the Miette bridge, pointed out the beginning of the trail up the left bank of the Athabaska and cheerily waved us farewell, with a parting assurance that we had a "dandy boulevard" all the way. Within three minutes, from out a welter of tangled timber, came a hail, "Just bring up that big axe." It was John at the head of the column, and presently followed that sound so familiar and so heartbreaking to the Canadian Rockies traveller, the steady wang of the axe and then the crash of the falling tree.

Progress was desperately slow at first. The boulevard was a sad fraud. But soon we were on more open ground and put on good speed. An early camp was voted for on a first day out, and after a couple of hours we put up the teepee and two small tents close to the river, which went

booming past with majestic thunderings. Soon we were gathered round the fire in the teepee, and where in the world can one feel such a sense of coziness, comfort and well being, find such good company, hear such fascinating yarns or smell such delicious odours of cooking and of fragrant pine smoke as in a teepee in the Rockies on a still night when the fire draws well and the river makes music outside?

This part of the Athabaska Valley presents an appearance unusual in the Canadian Rockies: its great breadth and the low hills which flank it almost remind one of Scotland, till the heartbreaking tangle of fallen timber between your feet and a glance at the turbulent, whirling mass of glacier water hurling itself along in the river bed recall you to your true whereabouts.

Next day we drew a blank. After a short march, the fallen timber got very bad, and John Yates went ahead to prospect. Soon he returned with bad news. There was a dangerous creek to be crossed and he pronounced it to be quite impassable after the recent rains. Just about then, to add to our troubles, it began to pour again, so after moving on a little way we camped. The huge bulk of Geikie* was now opening up a little to the southwest and we saw that a big glacier on its flank was responsible for the creek which barred our progress. Directly to the west of us a stream came down between two low hills and through the gap we could see a strange looking peak, shaped like a bird with wings half spread, or perhaps even more like an eagle lectern.† Beyond and to the right

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*Note—The mountain referred to by Mr. Howard as "Geikie" is a high peak seen on the west side, as you look up the Athabaska Valley from Jasper, and is not the mountain shown as Mt. Geikie on McEvoy's map, which lies further north and west and is not visible from Jasper. McEvoy's Geikie is on the Continental Divide and the name has been approved by the Geographic Board of Canada. —Ed.

†Vide No. 7 at end.

of this we thought we could dimly distinguish among clouds a fairly large snow mountain.

We dozed and smoked and abused our vile creek all the afternoon. Occasionally when the clouds allowed it we eagerly examined Geikie, which appeared to be vulnerable from this side — an appearance which subsequent and closer investigation showed to be due to the bad light.

On the following day it was agreed that John and Fred should make a serious attack upon the creek and that meanwhile Mumm, Inderbinen and I should make for the top of a hill to the west, from which a closer examination of Geikie could probably be made. Accordingly we made our way up the creek, running down from the "Lectern" mountain and when it narrowed, clambered up its right bank. Soon we found ourselves in fallen timber, the like of which we had never seen. We had set out for what appeared to be a two hour stroll, but I am not exaggerating when I say that it would have taken us six or seven to have reached the top of our hill. We reckoned our progress at about three hundred yards per hour, and after a very short spell of strenuous gymnastics and many vain efforts to get photographs which should not be ornamented with masses of foliage and dead branches to the exclusion of everything else, we decided to abandon ourselves to that sensation which is always so loudly proclaimed as involving acute mental suffering, but which every mountaineer knows in his heart is just as often an enjoyable luxury, namely: a frank admission of defeat and a firm determination to retrace his steps at a pace calculated to ensure the maximum of comfort and convenience.

Making our way down and along the main valley to the bad creek, we were delighted to see the tents already pitched on the further side close to the Athabaska. The

Photo, G. E. Howard

WHERE THE WHIRLPOOL JOINS THE ATHABASKA

Looking up Stream

Photo, G. E. Howard

LOOKING UP THE NORTH WHIRLPOOL

indefatigable Fred and John, after a prolonged search some miles up the stream had yielded no feasible ford, had adopted the heroic expedient of diverting half the torrent into an old flood bed. For a moment our own position, with the horses on the wrong side, looked a trifle queer, but very soon we were sliding down two thin and sensationally wobbly saplings thrown from a bluff to an island beyond the deepest part of the water. It will always be a matter of sorrow to me that I elected to go last and thus lost the opportunity of getting a picture of Mumm and Inderbinen as with imperturbable dignity they slowly pulled themselves with their hands along that frail and swaying bridge. During my own progress I was far too absorbed in the frightful peril which was being run by my only serviceable pair of nether garments on the sundry and manifold knots and other excrescences of the highway, to care for the joyous smiles which wreathed my predecessors' faces.

Again we closely examined Geikie through glasses and again there seemed an obvious route on this side, but next morning a clearer atmosphere showed our mistake, so we abandoned all ideas of an attempt from the east and pursued our way up the valley. The going was good at first and soon we had Hardisty abreast of us on the left, looking very fine and bold. By midday we had passed the junction of the Whirlpool and the Athabaska and, lighting a smudge for the horses near an old Indian encampment, we waited while John and Fred went forward to prospect for a route. Crossing some pleasant park-like ground with scattered trees, we entered dense timber and slowly pushed our way up a small draw which led up over a high bluff running across our path to the river. Subsequently we found the old trail keeps close to the water, but we got through pretty comfortably. A very long afternoon found us still among close growing small trees, and finally we had to camp with no feed for the horses, two of which had just made vigorous attempts

at suicide by jumping into the river, which carried them down for a considerable distance before they could scramble out. I need hardly say that these particular animals carried our bedding, which got soaked.

We were now able to enjoy a view of the fine little rock peaks which flank the lower stretch of the Whirlpool (which we were now following) on its right bank. Also we could see that Mt. Hardisty is the last and by no means the highest of a chain of mountains running along the right bank of the Athabaska.

Next morning was not much blessed to us. Five horses were lost, and while some of us went back to look for them, others went on to look for a trail. In fine, it was eleven o'clock before we got off and then the party managed to split into two. In one place among muskegs we were greatly interested to find remains of corduroy, which convinced us that we were more or less following the old C.P.R. prospectors' trail, along which stores were brought up from B.C. when the Yellowhead was originally surveyed by Sir Sandford Fleming. We very roughly followed the course of the river, passing through magnificent timber, which prevented our seeing anything of our surroundings. In the course of the afternoon the swing of a dead tree knocked me off my horse and punctured a neat hole in my head, which necessitated my being decorated with a bandana handkerchief bandage for the rest of the trip. We did much execution with a .22 that day among fool-hens, and when we at last came upon Fred and his party who had managed to get ahead, had the wherewithal for a grand "mulligan," a welcome change after several days of beans and bacon. The tents were pitched above a shallow lake and the valley opened out from this point, but the almost unceasing rain prevented our seeing much.

Next day we started out to climb a mountain on our right, an outlier of Geikie, which we saw would be a fin

viewpoint. Again we reckoned without the timber, for after a very laborious morning among windfalls, followed by some back-breaking scree slopes, we found we were only at the foot of the main rocks. As, moreover, the clouds were low and to climb further would have merely involved our being unable to see anything at all, we lunched in a bitter wind, and with intense interest looked around us. I have never experienced so fully the remarkable deception of which shifting cloud and mist can be guilty. Below us to the south spread a curious grass "Alp" of considerable extent, while to our right was a fine peak which we then erroneously thought might be Pelee.* Beyond the Alp was a range of 9,000 foot mountains, one being especially noticeable for a huge horn of rock.† But it was what we half saw to the east and southeast that chiefly rivetted our attention. What appeared to be several monster peaks kept showing out of the clouds and vanishing again: one especially with parallel vertical lines of snow and rock looked like the base of something very big indeed, and I will confess that for a few dizzy hours I harboured a fantastical idea that, perhaps, Douglas had been right in his estimate of the size of the mountains hereabouts. Still, I knew in my heart that it must be a fantasy, for Coleman is not a man given to making mistakes. However, we certainly had seen enough to convince us that, given a clear day, an intensely interesting panorama must be visible from a mountain due south of us about twelve miles higher up the valley at the forks of the north and south branches of the Whirlpool.

Accordingly, next day we pushed on—a most miserable march, in pouring rain, through horrible timber; Fred

*Originally named "Fitzwilliam" by Milton and Cheadle, Mt. Pelee is an altogether local name and seems to have no significance. —Ed.

†Vide No. 5 at end.

was ill and altogether it was a depressing experience. On my return on a clear day, I could see the principal feature of this stretch of the valley, namely, the fine snow peak which rises at the far end and is a beautiful sight the whole way up; but as we struggled along in the rain we could see nothing of it. In the afternoon we crossed a big torrent which we afterwards found was the north branch of the Whirlpool. Camping on a meadow below a thickly timbered hill we were cheered by evident signs of an improvement in the weather and talked much of what we should see on the morrow.

The morning, alas! brought clouds, but they were high and we started betimes up through the timber—here of splendid growth and fairly easy to negotiate. John Yates—that rarity among packers, an ardent climber—led the way, and an hour and a half saw us emerge upon the scree. With every yard we rose the interest increased: peaks opened up more and more, and after a meal by the last water we hastened to the top and found ourselves in an ideal situation for studying the surrounding topography. The little peak we stood upon dominates both the forks of the Whirlpool, standing out in the middle of a great sweep of country and by common consent we named it Panorama Peak.

We could now see how deceptive appearances had been from our last viewpoint. The shadowy monsters we had half seen had dwindled to their proper proportions, nevertheless the view was impressive in the extreme. To the west ran the deep, black valley of the north Whirlpool, the river meandering down the bottom in a hundred curves. Now we could see that this stream makes a right-angled sweep, flowing first due south and then turning due east till it joins the main river. To the north stretched the high alp we had seen two days before from exactly the other side of it, and beyond toward the vast mass of Geikie which is clearly the monarch of the district. But the chief point of interest was a fine range

Photo, A. L. Mumm

THE BIG GLACIER
One of the principal sources of the Whirlpool

running roughly north to south on the other side of the main Whirlpool. Shapely peaks, rock and snow, starting in the north with a big fellow* of which I afterwards thought I could make out the extreme tip from Jasper. Then a graceful rock and snow peak† with a vast gendarme on its southern flank. Next, several lower ones with a fine snow pyramid some distance behind and east-southeast of us a long high ridge‡ with vertical stripes of snow which had previously appeared in the clouds to be only the base of a huge mass. To the south of this was a fine snowfield drained by a magnificent glacier§ falling into the Whirlpool and forming one of its principal sources. Grouped around this snowfield are five mountains, the central and highest one consisting of a long sharp ridge.** This may be anything from 10,500 feet high.

Far away to the west and northwest we could dimly distinguish a sea of peaks, Pelee being the most conspicuous in the latter direction.

Certainly it was a thrilling moment, as we realized that in all probability no human eye had ever rested on many of these glorious summits. Even Coleman, when he went up to the Punch-Bowl, followed the river and does not even appear to have suspected what a pilgrimage above timber line would have revealed—but he was both pressed for time and had had an accident which prevented his doing more than keep to the trail.

The view was by no means perfect, clouds being annoyingly in evidence, but they were high and as we made a cairn we felt we had much to be thankful for.

After this the weather decided to be kind for a day or two and the trees round camp were festooned with

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*Vide No. 6 at end.
†Vide No. 4 at end.
‡Vide No. 3 at end.
§Vide No. 1-a at end.
**Vide No. 1 at end.

garments and blankets, while bathing became a luxury instead of a stern and agonizing duty. Near us we found an interesting blaze which is worth recording, as it dates from what may almost be called pre-historic times for this region. Here it is:

J.M.
W.C.
H.A.T.
H.S.
Oct. 20
'53.

Tempted by a cloudless sky and encouraged by the enthusiasm of Loo—Fred Stephen's second packer—a quaint little mortal, one time a journalist and now making a wonderfully leisurely journey round the world, putting his hand to everything en route—I forsook Mumm, who preferred to bask in the unaccustomed sunshine, and Moritz, who was seized with an absolutely Celestial fervour for laundry work, and set out in the morning with a camera to re-ascend our little Peak.

I had no intention of going to the top, but was anxious to secure some more photographs of the big snowfield to the southeast with its surrounding group of mountains. Loo had never climbed before, and his progress was hardly scientific; but nothing daunted by many tumbles he cheerfully took to all fours where his short legs were not found a sufficiently stable foundation on the screes. Leaving me to photograph, smoke and meditate, about two-thirds of the way up, he gallantly crawled to the top, enjoyed himself enormously and came down so thoroughly done up that on my return journey to Jasper I had a collapsed but indomitable invalid on my hands who called for equal amounts of admiration and anxiety.

It was a sad day when my time limit expired and I had to bid farewell to Mumm and his party. How I envied their prospect of setting eyes on the historic

Punch-Bowl, of examining more closely the great glaciers and the peaks above it and of making an attack on Geikie. Nothing can stir the imagination more than the sight of new mountains and untrodden valleys, with their deckings of gleaming lakes and glittering snowslopes—within your grasp—at least in appearance. As our rather depressed little party rode back along the now very passable trail I tried to picture the succession of, first, the well engineered riding path, next, the driving road and finally, perhaps, the railroad, the hotel, the ladies' promenades, the guest books, recording the "first ascent this season." It will all come—and the tourists will have a glorious time and the climbers will conquer all that serried array of virgin heights, but somehow I would not exchange the memory of that dripping trip, wallowing through the muskegs, listening to the endless crash of the axe and feeling that I had accomplished nothing but the seeing of a view and the bashing in of my head, for many climbs and all the hotels in the world.

Part II

By A. L. Mumm

The fixed objective which has been referred to by Howard, and which I signally failed to attain, originated in the remote past—for as a remote past I am beginning to regard it—of 1910. It was in the summer of that year, in the course of my second visit to Mount Robson, that, as I ascended the upper slopes of the Yellowhead Mountain, I saw rising into prominence some fifteen or twenty miles to the south of the basin of the Yellowhead Lake, an imposing mountain with a face so steep that scarcely a speck of snow could find a resting place upon it, which gradually reduced Mount Pelee, at first the dominating feature of the landscape, to a position of relative insignificance. So striking was the appearance of this peak that though it lay far outside the area with which I was concerned that summer and the following

one, my curiosity with regard to it, and my desire to make its closer acquaintance never died out, and last year an excellent opportunity of satisfying them seemed to present itself, for it was clear that after the camp at Mount Robson had broken up, I should be in a very commanding position for paying it a visit, or trying to do so. My first idea was to make for it by way of the upper valley of the Fraser River; my second, to start from the Yellowhead Pass itself, and find my way somehow (I was extremely vague as to the exact route, and as to the existence thereabouts of practicable trails) round the base of Mount Pelee, which I thought might possibly be attacked en route. In either case I hoped to get through —again I must add a vague "somehow" — to the Athabaska Pass and Mount Brown, and to return to Jasper by way of the Whirlpool River.

A third way of reaching the plateau to the south of the Yellowhead Lake, viz., by breaking through the mountains from the Athabaska Valley just above Jasper, had not occurred to me and was only suggested for the first time in the course of that memorable day of topographical discussion, of which Howard has given so lively a picture; had things gone as we wished, I think we should have used this way on the return journey.

Much of that unforgettable discussion centred round the identity of the mountain of which I have been speaking. Mr. Wheeler, who had also seen it from the Yellowhead Mountain, of course agreed with me that it was quite a different peak from the Mt. Geikie which is so conspicuous an object from the Athabaska Valley at and above Jasper, but as all the other people whom I encountered were firmly convinced that the contrary was the case, I believe I should have begun to waver in the face of such a consensus of opinion if my faith had not been restored by Mr. Reading just as our combined outfit was setting forth from Jasper.

Our way lay up the Athabaska, as already described, for, long before that date, the question of routes had been threshed out in a long correspondence with my old friend and companion John Yates. In reply to my suggestions he had pointed out, with unanswerable cogency, that if we set out to find a way through this unknown tract of country to the Athabaska Pass, it might easily happen that we should never arrive at anywhere in particular, and have to return to Jasper with nothing accomplished and with not enough time left to do anything else, while if we started up the Whirlpool, we should be reasonably sure of making the Athabaska Pass and would have plenty of opportunities of finding out whether the "round trip" that I had in mind could be carried out in the reverse direction.

Thus it came about that an ascent of Mt. Geikie began to take a prominent place as the first possible item in a programme where it had not originally figured at all, and great was the excitement when on August 20th, the view from Howard's "Panorama Peak" assured us that the way to the foot of the final cone of Mt. Geikie was perfectly easy, while the last three or four hundred feet looked, so far as could be judged at longe range, likely to provide no more of difficulty than would suffice to redeem the ascent from tameness. Furthermore, along the base ran a deep gap, which seemed to offer just what we had been hoping to find — though for my own part I had not expected to come upon it so early—a way through to the Yellowhead basin. There was no doubt a risk that on the far side we might encounter something which would be impracticable for horses, but the probabilities were all the other way.

So in the lazy course of the following day plans gradually crystallized and the programme took its final shape, widely different from its original one, but, perhaps, not more so than was to be expected considering how slender was the basis of knowledge on which the original

one had been built up. To be so far on the way to the Athabaska Pass and Mt. Brown and the historic Punch-Bowl and not to complete the journey was, of course, not to be thought of, and as for those distracting peaks on the other side of the valley which have already been described—well, Inderbinen had decided views as to a route through the magnificent glacier mentioned by Howard, and even hopes, which I confess I thought unduly sanguine, concerning the big snow peak beyond it. And then, back to Mount Geikie and through the gap into the unknown.

Next day, therefore, after bidding a regretful farewell to Howard and his companions, we pursued our way up the Whirlpool, as far as the great glacier, and reached the snout of it early on August 23rd, but a sudden change in the weather compelled us to retreat. We pushed on again in the afternoon and arrived at the Punch-Bowl early on the 24th. Then came one of my red-letter days, the only one that I was destined to enjoy last summer. As all the world knows, Mt. Brown, whatever it may have been in the past, is now only 9,000 feet high, but, as a viewpoint, it would be hard to say too much in its praise. There was not a cloud in the sky, and the atmosphere, as often happens when a solitary fine day occurs in the middle of broken weather, was almost uncannily clear. We spent fully three and a half hours on the summit, trying to absorb the details of a very wonderful panorama, hardly inferior in extent and interest to the one we had enjoyed in 1911 from Mount Bess. To the south all was new to me; near at hand the most striking feature was a beautiful group just beyond the deep trench of the Wood River, which I take to be the mountains surrounding Fortress Lake; beyond these a bewildering sea of snowy ranges stretched endlessly. I believe I succeeded in identifying Mt. Sir Sandford, but even of this I cannot be certain. To the north, of course, the first object we sought for was Mt. Robson, which looked stupendous, and presented an

Photo, A. L. Mumm

LOOKING DOWN THE WHIRLPOOL VALLEY FROM THE PUNCH-BOWL

Photo, A. L. Mumm

MT. BROWN ON THE LEFT

Mr. Mumm suggests the peak on the right may be Douglas' Mt. Hooker

aspect entirely different from any that I had seen previously; the Lynx Mountain was surprisingly conspicuous considering its actual size; I remember that two years earlier it displayed just the same knack of asserting itself in the views from the other side. Immediately north of us was a peak almost the same height as Mt. Brown, of which I shall have more to say in a moment, and beyond that came a broad depression, an open alp-like tract across which I suspect that one could travel without difficulty to the headwaters of the Fraser, and so carry out my first-formed plan. The mountains on the other side of the depression presented themselves as a confused mass, amongst which I quite failed to pick out with any confidence the peak which had so much impressed me in 1910; the only thing which seemed clear was that none of them were as high as Mt. Geikie.

Descending the valley, two days later, I had a good view of Mt. Brown, and the adjoining peak, of which mention has just been made. It would be hard to find another pair of mountains rising side by side which resemble each other so closely. They are as like as Tweedledum and Tweedledee, and the resemblance suggested to me a solution, which has not, I think, been put forward before of the hitherto unanswered question, "Where is Mt. Hooker?" Why should not these two mountains be Mount Brown and Mount Hooker? It has always been taken for granted that they must be on opposite sides of the pass, but there is not a word to warrant this assumption in Douglas' narrative; the only statement he makes that has any topographical significance is the following: "A little to the southward (of his Mount Brown) is one nearly the same height, rising into a sharper point; this I named Mount Hooker. . . . . This mountain, however, I was not able to climb." It is difficult to put an intelligible interpretation on these words except on one hypothesis, which I venture to submit to readers of this journal, namely, that Douglas

went up the northern peak and called it Mount Brown, and that Dr. Coleman's Mount Brown is Douglas' Mount Hooker. Unluckily the idea did not occur to me while I was still at the pass, so that I did not examine the northern peak with a view to seeing whether it is more easy of access than the other. This has some bearing on the question. If Douglas was not something of a mountaineer, in fact, a good deal more of a mountaineer than was common in his time, I very much doubt if he would have found his way to the top of Dr. Coleman's Mount Brown alone.

At four o'clock on August 29th, Inderbinen, Yates and I started again for the big glacier. We crossed to the right bank, encountering some difficulties in doing so, scrambled up steep slopes of loose rocks and shale, and then, taking to the glacier once more, reached a fairly level bit of unbroken ice on the very heart of it. We were in the centre of an immense battlemented cirque, and straight ahead of us, in particular, stood out against the sky the most menacing array of towers and pinnacles that I have ever seen. They looked as if they might topple over at any moment and in a few minutes we were among shattered fragments of blue ice, scattered over the surface of the glacier, which warned us, if warning had been needed, that they not unfrequently did. We struck off to the left and began to worm our way upwards through a labyrinth of big crevasses, where it was soon necessary to move slowly and with care. The difficulties ahead, though considerable, did not seem unsurmountable but more lumps of ice embedded in the snow which partly filled the crevasses, showed only too plainly that here, too, we were by no means out of range. We looked this way and that: always the same tale. It was a severe and unexpected blow, but there was nothing to do but to give in. I doubt if it would have been justifiable to push on even if there had been another line of descent available, but there was none, and to have let ourselves

in for a return journey during the late afternoon would have been a piece of criminal foolhardiness. There was some consolation in discovering a few days later that the snow plateau above the icy battlements was much broader than we had supposed and that we should not have had nearly time enough to attempt the ascent of the big mountain, but it would have been quite possible and intensely interesting to cross the plateau and have a look at what lay on the other side of the range. As it was we had to content ourselves with having made the acquaintance of a huge glacier of exceptional grandeur and impressiveness, quite as remarkable, in its own somewhat sinister style, as the one in the Chown massif which we had visited two years before.

After all the most interesting and exciting portion of the trip was still before us, and the recollection of this defeat troubled us but little when, on August 31st, having re-crossed the North Whirlpool, we reached the parting of the ways and settled ourselves on what we hoped would be our last camp in the Whirlpool Valley. As there was still just a possibility that the route past Mount Geikie might present some unexpected obstacle, it was arranged that we should make a light camp on the divide, from which to ascend Geikie—the top of which I regarded as already in my pocket—and then, if the way was clear, Yates would go down again and bring up the rest of the outfit, while I stayed on in the light camp with Inderbinen to take photographs or do nothing as the spirit moved me. And then the tragedy began. The weather played with us as a cat plays with a mouse, ably seconded in the game by the aneroid barometer which jumped up and down with maddening inconsequence, varying fully seven hundred feet in the course of the week. For two days we bore it philosophically—there was still a margin of time in hand—but on Wednesday and Thursday the camp was enveloped in profound gloom. On Friday we grew desperate, and on the strength of a

few watery gleams of sunshine made a start, only to be driven back by a snowstorm. There was barely time left to attempt the new route back to Jasper, but we hung on, hoping against hope. Finally, on Sunday, September 7th, we did get off, and next morning reached the main ridge of Geikie without much trouble. The wind was raging there with quite extraordinary violence and we waited for an hour, in the hope that things might improve, before pushing on to the foot of the summit cone; but the fury of the gale only seemed to increase as time went on. This story of failure has already run an inordinate length, and I will not go into the details of our final repulse. Some three or four hundred feet from the top—perhaps half an hour's climbing in ordinary conditions — we admitted that the hurricane was too much for us. Another snowstorm that night was the finishing touch and, on the 10th, we commenced the retreat to Jasper. The last two days were exquisitely fine, and as we rode down the Athabaska Valley, Mt. Geikie, its snowy summit gleaming placidly in a quiet sky, looked down on us with solemn derision.

Note.—We venture to suggest the following names for the principal peaks mentioned. The numbers refer to those marked on the sketch map.

1. Mt. Scott.

1-a. Scott Glacier.

2. Mt. Wilson (near neighbour of Mt. Scott on the big snowfield).

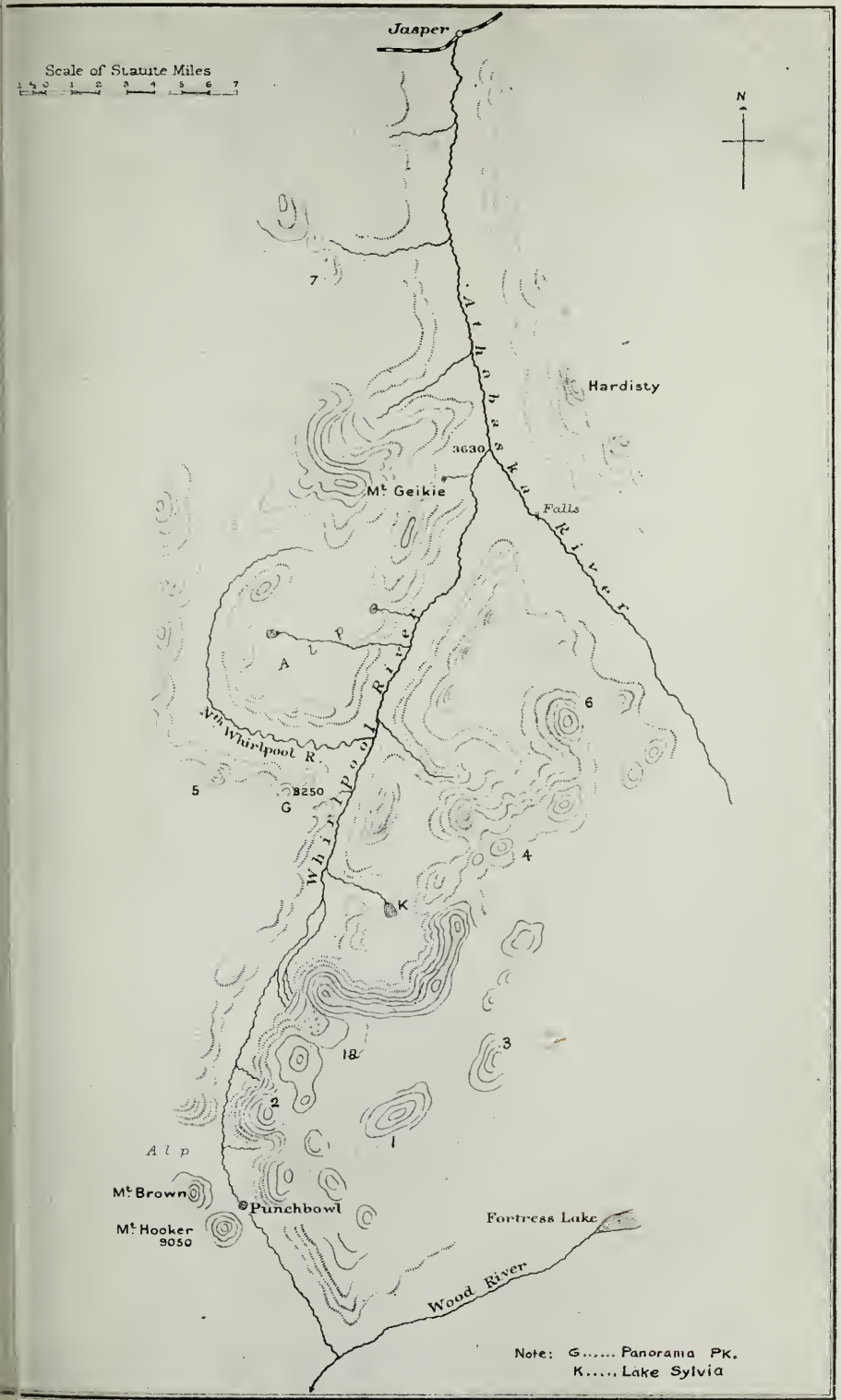
3. Mt. Oates (near neighbour of Mt. Scott on the big snowfield).

4. Mt. Bowers.

5. Mt. Evans.

6. Mt. Patricia.

7. Lectern Peak.



MAP OF MUMM AND HOWARD'S ROUTE

SOUTHERN ROCKIES

NOTES OF A TRIP TO THE SASKATCHEWAN RIVER AND FRESHFIELD GLACIER (1913)

By J. W. A. Hickson

On August 6th, 1913, I left Lake Louise in company with Edward Feuz, and under the guidance, so far as concerned the trail, of the excellent packer, Ernest Brearley, of Banff, to do a little mountaineering among the big peaks lying to the north of the middle fork of the Saskatchewan River. Owing to almost continuously bad weather, the trip proved rather barren of results.

Rain began to fall before we had packed up at Brearley's camp, half a mile west of Laggan station, and kept up with a few intervals all day and during the greater part of the night. Our first camp was at Hector Lake, the second at Bow Lake, where the rain changed to snow between the night of August 7th and the morning of the 8th. A cold, dreary day was spent in camp, varied by unsuccessful fishing in the lake. Rain fell heavily again in the evening, and throughout the night. A short march was made next day over Bow Pass to a camp below the summit. North of the pass the trail was in an atrocious state; probably, under any circumstances, it would have been bad, but the rain had rendered it dreadfully soggy and the pack-horses had a hard time in pulling through. A fine evening made us feel more cheerful, and our camp was pitched in a charming wood of jack-pine at an elevation of about 5,700 feet.

On the 10th, we made an early start for the Waterfowl Lakes. The trail, traversing green timber, was at first

tolerable, but later was exceedingly bad, and the fallen trees encountered delayed us considerably. Game guardians and packers appear to shirk the cutting away of these obstructions, preferring to take the absurdest risks in jumping their horses over the obstacles. We pitched camp northeast of Howse Peak and east of Pyramid Peak at a fordable place of the stream connecting the two Waterfowl Lakes, having determined to have a try at the latter mountain, which was still unclimbed.

The morning of the 11th was showery, but nevertheless we rose fairly early, and breakfasting shortly after four o'clock, set off about five. After crossing the stream on our horses, Feuz and I struck to the left, and ascended over thinly timbered ground to the shoulder of the hill opposite the camp. Thereafter we came on fallen timber of a heavier sort, followed by more difficult ground, which is of an especially trying character in the vicinity of the unnamed lake, somewhat larger than Lake Louise, which lay between us and Pyramid and to the south of the peak. Large blocks of stone, piled at all kinds of angles, impeded our advance around its shore. At its southern end, a moraine leads to a grassy slope on the peak itself. Here we rested a few minutes before nine o'clock. Shale slopes and easy rocks followed for the next hour and a quarter; and then the first barrier of steeper rocks was reached, at which the rope was brought into use. At 10.15 o'clock we were about two hours from the summit. The climbing was fairly easy, but at a couple of steep pitches, the leader did not despise a leg up. By traversing an interesting ledge to the left, we were brought to the saddle which connects the two peaks forming the "massif," the lower one covered with snow and a small glacier being known as the "White," and our objective point as the "Black" Pyramid.

From the saddle we had a splendid view of the unscalable northeastern cliffs of Howse Peak, which from the west is not formidable looking. From here a climb of

Photo, J. W. A. Hickson
ICE PILLAR NEAR FOOT OF FRESHFIELD GLACIER

Photo, Ed. Feuz
THE BLACK PYRAMID, MISTAYA VALLEY

forty minutes landed us on the summit, on which we erected two stonemen. The final northern arête afforded short pieces of good rock-climbing, but of real difficulties there was none. Under the conditions prevailing, the view from the top was limited. From time to time we had eagerly scanned the sky, apprehensive lest the masses of black clouds should precipitate a deluge of moisture; but the day passed with only a couple of light showers. Mt. Forbes, which we had decided to attempt, could be seen very clearly, and although the summit was hidden by clouds, the route along the southwestern arête seemed the very obvious one. Fair views were obtained of Mts. Lyall, Alexandra and Saskatchewan, to the west and north, while southwards, Temple and Hungabee were recognizable. The height of Pyramid has been placed by Dr. Collie and others at 10,700 feet, but to us it appeared that it might be less.

After an hour's descent from the summit, from which we started shortly after 1 p.m., we turned aside from our earlier route to the left; in the direction of the northern end of the lake. Lower down a long and steep stone gully, which would have afforded a pleasant bit of rock climbing in the reverse direction, obliged us again to bring the rope into requisition. Its descent ended at the water's side. Around the northwest side of the lake we found an old game trail; and at the end a convenient jam of logs and trees enabled us to cross just above the outlet, which otherwise would have caused us some difficulty. From this point, the going was easy, although tedious, over marshy ground to the wood through which, under the leadership of Feuz, we bore directly down to our camp, where we arrived at 7 p.m.

It rained all night and part of the following day; so that only a short move northwards was made. Nothing was undertaken the following day owing to the amateur of the party being unwell. On the 14th, we made an early start down Bear Creek. The trail was poor and horribly wet,

and fallen timber again proved trying to our tempers. The fording of Bear Creek was easier than anticipated, all the horses getting safely across without damage to their packs. We had a fleeting view of the north fork of the Saskatchewan, heavy clouds and mist preventing us from seeing far or for long. A strong, cold wind blew in the valley of the middle fork, and snow fell plentifully on the higher peaks.

For the time being, the possibility of attempting Mt. Forbes or anything approaching that class of mountain being excluded, we decided to proceed to the Freshfield Glacier, hoping that this would allow sufficient time for the weather to improve. The morning of the 15th was cold and stormy, although without the customary precipitation of moisture. We reached the Freshfield Flats in four hours from camp, after numerous crossings and re-crossings of the Saskatchewan, which were accomplished without mishap, but not without the use of a good deal of energetic language. Then a torrential rain descended, and by the time we had crossed the Flats and ascended the bit of thick wood to the glacier, we were all thoroughly soaked. Our camp was made about two hundred yards from the tongue of the glacier, at about 5,300 feet, where a cold and windy night ensued.

We awoke to find a glorious day, and Mt. Freshfield and its group, covered with fresh snow, sloping up splendidly against a deep blue enamel-like sky. No time was lost in making preparations to spend the day on the glacier.

The glacier, a "magnificent river of solid ice," which shows signs of apparently rapid recession, is so dry and free from dangerous crevasses that we did not use the rope throughout the five miles traversed up to near the base of Mt. Freshfield, which rises to a sharp point and forms quite the central feature of the ice-field and group of surrounding peaks. Like other visitors to the glacier,

Photo, Ed. Feuz

MT. FRESHFIELD AND GLACIER

we also noticed the remarkably large and rectangular shaped blocks of stone scattered over its surface. On the northern side of the glacier, which terminates in a steep ice-fall, 80 to 100 feet in height, some curiously shaped blocks of ice have evidently become detached from the main body of the ice-field and are now separated from it by distances varying from fifty to a hundred yards. Several of these resembled round towers and one of them contained a marvellous blue grotto; others were more like slabs of white marble monuments. Our eyes lingered on the peaks and were drawn to snow-capped Mt. Mummery some ten miles to the south; but climbing was and would be for some days out of the question on account of fresh snow. We held a consultation that evening as to our plans, and decided, if the fine weather held, to remain where we were for a few days, in the hope of being able to do something later. No such chance was afforded us, for on the following morning there was a complete reversal of weather conditions; and warned by the experiences of the last ten days, we packed up quickly and descended to the Freshfield Flats. Very reluctantly we came to the conclusion that it would require nearly a week of fine weather to render the higher peaks comparatively safe. There is a good camping ground on the right side of the Freshfield Glacier several miles higher up from where we camped, from which a week of interesting climbing and exploration could be had.

After a short march over Howse Pass, we camped on the afternoon of the 17th near the eastern base of the peak of the same name, with the intention of exploring its higher parts next day. But again we were disappointed. Rain fell most of the night, and at 2 a.m. indications were too unfavorable to warrant starting out. We now determined to make for Field with the least possible delay. Poor weather attended us until the 20th, and it was not until we were encamped in sight of the summit of

Mt. Stephen that we had another fine evening, the third out of sixteen nights.

The trail to Field from the Saskatchewan was on the whole easier, more varied and pleasant than the one over Bow Pass. Although sometimes very steep, it was more frequently like a road through park land, and only on one day had we real difficulty with fallen timber. The physical conditions and consequent disappointments of the trip rendered it an excellent moral discipline. Some interesting mountaineering problems were suggested for a future expedition. A noticeable feature of the trip was the absence of animal life. A few ptarmigan, several porcupine, which did not molest us, and a large goat on Pyramid Peak were the only specimens which came within the field of actual vision.

FIRST ASCENTS OF BEAVER AND DUNCAN (1913)

By E. W. D. Holway

"They endure the greatest Fatigues and traverse the most impassable ways and horrid Precipices in order to the execution of their designs."—Hennepin, 1698.

Twice the writer had camped at the foot of the Beaver Glacier, hoping to try conclusions with these fine rock peaks, but continuous rain always prevented climbing. The morning of August 22nd, 1913, showed every sign of settled weather and the two Swiss guides at Glacier House, Ernest Feuz and Christian Häsler, were persuaded to carry packs and undertake the trip. No time was lost in getting ready and at one o'clock we were starting down the old trail from Bear Creek Station. About ten miles up a stop was made for the night on the bank of the river. It was planned to make an early start and reach the Beaver Camp the next evening, but a heavy rain, lasting from 4 to 6 a.m., kept us in the tent, and it was the morning of the 24th when we reached it. The balance of that day was spent in preparing soft beds of balsam boughs and in walking round the great tongue of the Beaver Glacier. Breakfast was cooked in the evening, the alarm watch set at 2 a.m., and half an hour later we were following the light of a candle along the valley trail. When we came to the stream from the Duncan Glacier, we turned upwards and kept along this until we came to the big north moraine. Preceded by two mountain goats, we walked along the crest until near the upper end, when we went on the glacier and put on the rope. The ice was much crevassed and we finally had to cut along the upper wall of a big schrund for fifty feet until we could surmount it and reach the lower rocks of the east face of Mt. Duncan. Here we unroped and kept straight up until

past the great overhanging ice-cliffs, when we made for the south arête and followed that to the summit, arriving at 9.10 a.m. A suitable monument was erected and an hour later we started along the ridge towards Mount Beaver, expecting to descend from the west end. It was almost a knife-edge and in a "shockingly bad state of repair." We found the west summit overhanging (see photographs from Sugarloaf, Can. Alpine Journal, p. 83, 1911), and so took the easy slope to the south col and then down a frozen waterfall and across the smooth, wet rocks of the southwest face, meeting with several deep gullies in the lower part, and finally arriving at the foot of the southeast arête of Mt. Beaver. This route can only be followed when the rock is free from snow, as the holds are only the friction of the open hand; the stone is schist, however, and the bootnails hold well. As it was our plan to return by the Beaver Glacier, it was suggested that we climb faster, so the guides set a terrific pace and instead of the estimated two hours, fifty-five minutes saw us on the summit at 12.45.

The day was absolutely perfect, all the great peaks of the Rockies were sharp and clear and the beautiful ice-world of the Selkirks was more wonderful than usual. Instead of the Battle Range being the end of the fine mountains, there are glaciers and peaks to the horizon. The first valley opening into the Duncan is exceedingly fine, leading up to the unnamed and unclimbed western summits of the Battle Range, which appears to be higher than Mt. Beaver. The third valley also has large glaciers and some very high peaks.

Another large stoneman was erected, and at 1.35, not knowing how much time the glacier might require, we went down to the col and turned north on the ice, following around Mt. Duncan to the narrow ridge of rocks between the glaciers, then directly to camp, over the hill and down on the moraine of the Beaver Glacier,

Photo, E. W. D. Holway

MT. BEAVER
From Foot of N. Arête of Mt. Duncan

Photo, E. W. D. Holway

THE BATTLE RANGE
From Summit of Mt. Beaver

arriving in time for a bath in the ice water and dinner before dark.

In the morning we took the trail down the river for about three miles, to the first meadows, waded the stream and packed until 6 p.m. through alder-slides and all the abominations of a Selkirk mountain side. We made our camp among big boulders at the edge of the south moraine of the Grand Glaciers, some distance above the tongue. Here was a small grove and a nice little spring with plenty of dry wood. There was no place for the tent, so each one hunted up a sleeping-place. The guides were warned to look out for mountain rats, but not having had any experience with them, they only looked after their boots. In the morning Christian's pack straps were eaten badly and the rice and salt had vanished. The writer had a hole between the stones and one big rat persisted in jumping down upon him, from some three feet above, so that when the alarm announced 3 a.m., he felt that he had not slept at all.

As soon as it was light enough to go, we crossed the glacier to the east side of the two-thousand-foot icefall of the north Grand Glacier and followed Huber's route, partly on the ice and party on the rocks, to the Deville Névé, then past Mt. Wheeler and the Bishop's Range to the west side of the Deville Icefall. Here we put down our packs while a way was found down the rocks. Huber states that he went up on the rocks at the edge of the glacier, but we found it necessary to go up higher and further west. With our packs this proved to be, indeed, a "horrid precipice." The rocks were wet, smooth, and partially covered with moss that slid off when stepped upon, so that the best way was with the back to the wall, reaching down with the iceaxe for secure holds. With a big pack this method proved to be somewhat exciting. Going up, or without the packs, the route is not especially bad. We finally came to a place where it was necessary

to cross a very thin-looking snow-bridge across a deep gully. The rope was unpacked, Christian was tied on, and with the rope around a convenient stone, we let him carefully down. The snow was found to hold so we slowly followed and were soon on the glacier. Reaching the stream we cut a tree for a bridge and were shortly after putting up the tent in the beautiful meadow of Glacier Circle, with the great precipice of Mt. Fox just across the stream from us.

Again we were out at 3 a.m., and at daylight were trying a new route to the Illecillewaet Névé, up to the moraine next to Mt. Macoun, and over this to the snowfield; a much better and shorter route than the Huber way by Mt. Fox. The snow was hard in the early morning and we reached Glacier House in ample time to prepare for lunch. It is easier to take packs up the Beaver Valley, but the finest trip is by the Illecillewaet, Deville and Grand Glaciers, returning by the Grand and Black Glaciers and over the Donkin and Asulkan Passes.

EXPLORATION IN THE SOUTHERN SELKIRKS (1913)

By E. H. Harnden

Back again in the summer of 1913 to Happy Valley and the peaks near the head of the Columbia River. Previous experiences were still vivid, and the call was strong. Such is the appeal of that wonderful western Canadian mountain and lake country, the

"Land of Beyond
That dreams of the gates of the day."

Of course, it could not be omitted from a circle-swinging itinerary to which "Madam" was to have her first taste of the joys of western out-of-door life.

We were accompanied by an engineering friend, Mr. W. C. Phelps, of New York, and were equipped with instruments which would help us to complete surveys and estimates previously begun with Mr. G. D. Emerson, of Boston, and largely dealing with Toby Creek, lying just to the south of Horse Thief Creek. The main thing, of course, was the good time, but the sizing up of the country, unknown topographically, a probable climb or two, a possible chance to tie up with the work of Mr. A. O. Wheeler to the north, furnished the "broblem" which a German friend insists is a necessary element of even a pleasure trip. In Mr. Charles D. Ellis, of Ellenvale Ranch, Windermere, and in "Uncle Joe" Young, who looked after the horses, I had tried comrades of other days.

Landing at Invermere at the head of the Columbia River, from the old Kla-how-ya, on July 4th, we proceeded to Ellenvale Ranch, and here good fellowship and delicious wild strawberries did their best to hold us back, like Longfellow's youth, from the Alpine passes.

July 7th found us at the Starbird Ranch, twelve miles up Horse Thief Creek. This used to be known as No. 1 Creek, but received its present romantic name from the exploits of an American and a Swede who, in 1885, it is said, rustled some pack-ponies from a whisky pedlar. They were pursued up the creek, captured and taken to Fort Steele, where the episode ended in a big spree all round, after (or during) which the alleged thieves were discharged. As to whether the wronged whisky pedlar acted as host, history is silent.

From eastern outposts of the Selkirks, ten or twelve miles up such tributaries of the Columbia as Toby and Horse Thief Creeks, wonderful panoramas are obtainable. Such an outpost of Toby Creek is Paradise Ridge, almost on the shoulder of Mt. Nelson (Hammond). A view even more notable is obtained from the summit of Mt. Highball (8,000 feet), just north of Starbird Ranch, on Horse Thief Creek. This glorious panorama, with its northeastern to eastern distant sweep of the Rockies—Assiniboine standing out splendidly—its overlook of the Windermere Valley and the Lakes, and its especially intimate view of the neighboring Selkirks—their glaciers, peaks, passes and valleys—we enjoyed to the full on July 8th. The climb is not difficult and those who are in the neighborhood and who wish to obtain a grand view and probably as good an idea of the country as can be obtained from any one point, should make it. It assisted us greatly, topographically, in getting lines on near and distant peaks with which we were already familiar.

On July 9th, Phelps and I tramped from the ranch up McDonald Creek and back. Incidentally, we made a reconnaissance of Mt. Farnham (once Mt. Bolivar) from the McDonald Creek side. Farnham has the "flat-iron" appearance of Lefroy, and can, perhaps, be described as a cathedral-like mountain, its high precipitous sides and buttresses formed of horizontal strata of a dark, hard limestone, which in eroding

does not gully appreciably, but breaks away at a sharp angle, making attack difficult. From this high wall, or body of the cathedral, rises the striking tower or "thumb" and the sharp, steep, knife-edging roof, formed of brittle and rapidly eroding limestone. One problem will be to surmount this underlying precipice, finding a break in the armour, and we are not yet satisfied as to where such a break occurs; a second, to deal with the rotten rock above, which is sharply and fantastically eroded. It will probably mean here a ridge-pole or arête attack, nothing else seeming feasible; but it will certainly offer problems, and these problems—Farnham not really having been included in our plans for the summer—we did not attempt seriously to work out. It is, however—while there will always be plenty of snow and ice present to complicate matters—essentially a rock climb, to be essayed by a small party.

July 10th saw our expedition bound up Horse Thief Creek. The Emersons and I, in 1911, had gone straight up the main creek to the Starbird Glacier. We had not had time to go up the South Fork, and I planned for 1913 to do that, filling in the topography between the main Horse Thief and Toby Creeks. We intended to go straight up the South Fork to the neighborhood of Jumbo without stopping by the wayside; but one of those fool-chance things that upset the plans of gods and men intervened. We had become subconsciously obsessed with the Farnham "motif." Little was said about it, but we looked guiltily and furtively at each other, and the ghost would not down. We traversed the beautiful lower stretches of the valley dominated by the lovely sally serena and covered with countless peculiarly truncated, snow-patched pinnacles or knobs of friable limestone. Our trail lay along the creek side, now through flower-dotted meadows, then threading rock-slides; the valley grew narrower, the mountain walls steeper; we passed the mouth of McDonald Creek, one of the gateways to

Farnham—and not a word was said about that mountain. But when we reached Flume Camp, where the North Fork enters the main Creek, we caught a glimpse through a gap in the southern mountain wall of a peak that certainly resembled Farnham, thumb and all. "Farnham" it was!

"The word that cleft Eildon hills in three
And bridled the Tweed with a curb of stone."

A bet was immediately on between Bill and Charley. Kipling's Americans were at once ready to "shake with destiny for the beers"; though in this case the stake was a fuzzy hat. Charley said it was Farnham; Bill said it wasn't. I was non-committal but interested. The practical result was that all plans were side-tracked while the bet was being settled, which meant a tough and skin-abrading trip up a slide and basin a few miles above Flume Camp, later named by us, for perhaps obvious reasons, "The Basin of the Three Jacks." That trip will always bring to the mind of each of "the three" memories of a shin-bruising climb, ending in a hopeless "jackpot"; the ascent of a ridge whose difficulty was out of all proportion to its importance, a perch for the night on a rocky eyrie, an inquisitive grizzly, a nocturnal snowstorm, avalanches, primeval chaos, but—Phelps won the hat.

Turning into the South Fork we traversed a fine piece of woods and our trail rose sharply, the elevation of the South Fork being well above that of the main valley at this point, which accounted for the remarkable canyon we encountered at the top of the rise, where the South Fork plunges and winds between high, narrow and twisted rocky walls before joining the main stream. Above the canyon the valley gradually widened, as all these glacier valleys do, into quite a broad, sloping-sided basin, carved out by the retarding glacier; attractive meadows and, in the season, abundant grass for horses are found both along the creek and in the higher-lying tributary side-draws, with their clear streams flowing from the smaller

Photo, E. W. Harnden

THE SOUTH FORK CAMP
Looking down Stream

snowfields and glaciers. Close at hand are some of the highest peaks in the southern Selkirks.

We went into our South Fork camp, about two and one-half miles below the tongue of Jumbo Glacier, on July 16th. Our first work was to lay out in the valley a long base-line. This involved wading at times nearly to our hips in ice-water, with disastrous results to myself later. We planned to climb Jumbo, and started out with this object in view on July 18th, making our night camp well up on the right bank of the glacier. Early on the 19th we started, following in the main, early in the day, the glacier itself. Much time was lost in threading the séracs and in step cutting. It would have been wiser for us to have followed the side rocks more closely. This we did later, but the lost time could not be regained. For me the whole trip was painful. My feet were badly swelled by the ice-water immersion and were like lumps of lead. While we attained one of the minor points overlooking the summit plateau, we failed, through lack of time, to reach the highest point. The summit peaks of Jumbo spring from the outer edges of a broad snow-plateau, reminding one of the points and the depressions of a huge molar.

From the summit plateau we obtained a glorious panorama. Here is undoubtedly the climax of the Selkirk snow and icefields. Peculiarly striking was the view down the South Fork and towards Mt. Sir Charles, the Farnham Ridge and the peaks beyond.

After taking bearings and photographs, we plunged rapidly as possible down the snowfield and over the glacier to our temporary camp, and the next morning returned to our permanent South Fork camp opposite the base of Mt. Sir Charles.

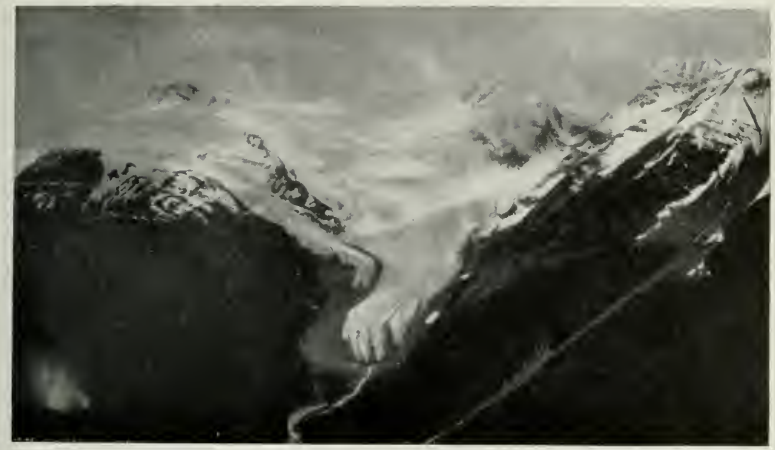
We had climbed the south summit of Mt. Sir Charles before attempting Jumbo, but had discovered that the north peak, separated from the south peak by a bad gully,

was slightly higher, so on July 22nd, Phelps and Ellis climbed this northern peak while I ingloriously nursed my swollen feet in camp. Mt. Sir Charles offers a magnificent sweep of the highest peaks in the southern Selkirks. It is itself a high and striking peak, approximately 10,800 feet in elevation, close to the precipitous Farnham Ridge and across the valley from Jumbo. It thus affords a panorama of a complete circle of fine peaks at the head of the valley, and a view down the South Fork and of the mountains beyond.

One of the problems of the summer was to locate Mr. Wheeler's "Eyebrow Peak," which he and Dr. Longstaff saw to the south from the Bugaboo Creek region. This, we think we have done. We believe it to be the peak which stands out near the head of the Starbird Glacier, which is marked "Unnamed Peak," at the western edge of our map. The height is determined to be approximately 11,090 feet. It seems to be one of the three big peaks of this region, and there is a doubt whether Farnham, Jumbo or Eyebrow is highest. The figures on the map show that they are not far apart in elevation. They all offer interesting problems. Farnham should probably be climbed later in the season than the others, as it is more essentially a rock mountain, perhaps to be climbed to better advantage when the snow and ice have melted as far as possible. While there are rock ridges that might enter into the problem with the other two giants, they involve mainly snow and ice work.

On our way out from the South Fork camp, Phelps and I went up North Fork, with a view to finding a possible approach to Eyebrow, but we found nothing to throw any light on this problem. Eyebrow will, perhaps, be best approached by the main creek and Starbird Glacier.

A little side light was thrown on the appropriateness of the name of "The Basin of the Three Jacks" by our



Photo, E. W. Harnden

JUMBO SNOWFIELD AND GLACIER
From Mt. Sir Charles

Photo, E. W. Harnden

HIGHEST CENTRAL PEAK OF THE JUMBO CIRQUE (11,190 ft.)

experience on the way out. The Madam, Uncle Joe and Charley went straight down to Flume Camp, going by the mouth of Three Jacks Basin ahead of Phelps and myself, who had taken a side trip. Passing the mouth of the basin two hours later Phelps and I found an enormous mass of ice, snow and rock which had swept over and was piled high on the trail by which we had come some days before. Looking up the basin we saw that a huge block of ice had come from a hanging-glacier on Jackass Ridge, had swept down through the basin, carrying everything before it, even gouging out the lower-lying glacier in places almost to the bare rock, and had not stopped in its wild career of several miles until it had debouched clear across the trail along the main creek. It had not been many days since we had made our exploration in the basin and on the ridge. If this had happened then—and it is unquestionably a thing which must happen frequently—we, of course, would have been swept away. The striking fact, however, was that it happened between the time when the first section of our party passed on to Flume Camp and the two hours later when Phelps and I followed. The advance guard found the trail unobstructed, but had heard later and had been unable to account for the roar of the avalanche.

A large mountain camp might very well distribute its time between the upper main creek and the South Fork. Both afford attractive camping valleys or basins, with feed for horses in the season, preferably about August 1st. There are more striking waterfalls to be seen along the main creek, and there is wonderful Lake Maye readily accessible. On the other hand, there is the remarkable canyon of the South Fork and the side-draws of ravines, with their clear creeks draining high-lying glacier beds, well worthy of exploration, and containing wonderful alpine gardens.

Among the flowers we found, besides some we have not identified, were the following: Paint-brush (Castilleia

septentrionalis), Broad-leaved willow-herb (Chamaenerion latifolium), Large purple beard-tongue (Pentstemon fruticosus), Purple-pink yarrow, Orchis rotundifolia, Involucred fly honeysuckle (Lonicera involucrata), Mariposa lily, Fire weed (Chamaenerion angustifolium), Wild onion (Allium schoenoprasum), Bog wintergreen (Pyrola uliginosa), Twin-flower (Linnaea americana), Labrador tea (Ledum groenlandicum), One-leaved wintergreen, Small bog-orchid (Lysiella obtusata), Long-beaked elephantella (Elephantella groenlandica), Red mountain-lily (Lilium Montanum), Butterwort (Pinguicula vulgaris), Blue larkspur (Delphinium menziesii), Forget-me-not (Myosotis alpestris), False forget-me-not (Lappula floribunda), Alpine Anemone, Wind flower (Anemone globosa), Tall Zygadenus (Zygadenus elegans), Drummond's mountain avens, Yellow columbine (Aquilegia flavescens), Mountain Phacelia (Phacelia sericea), Large purple fleabane (Erigeron salsuginosus), Blue fleabane (Erigeron acris), Golden fleabane (Erigeron aureus), Heart-leaved Arnica (Arnica cordifolia), Salmon berry (Rubus parviflorus), Purple virgin's bower (Atragene columbiana), Clintonia (Clintonia uniflora).

Phelps and I before returning to civilization, made an interesting trip up the North Fork. But this Fork is rather too closely shut in, having no side valleys or outlets that afford outside vistas. An interesting feature geologically, however, seems to be the occurrence on one side of the valley of the general limestone of the region and on the other of granite, with an occasional overlapping. I have already reported on a previous trip finding granite at the top of Mt. Gleason. There seems to be only these rare and occasional granite outcroppings in a limestone region.

I returned from my 1913 trip to the Windermere region more firmly convinced than ever that this is really the most interesting part of the Selkirk Range. It has in full measure the ice, snow and rock features of the

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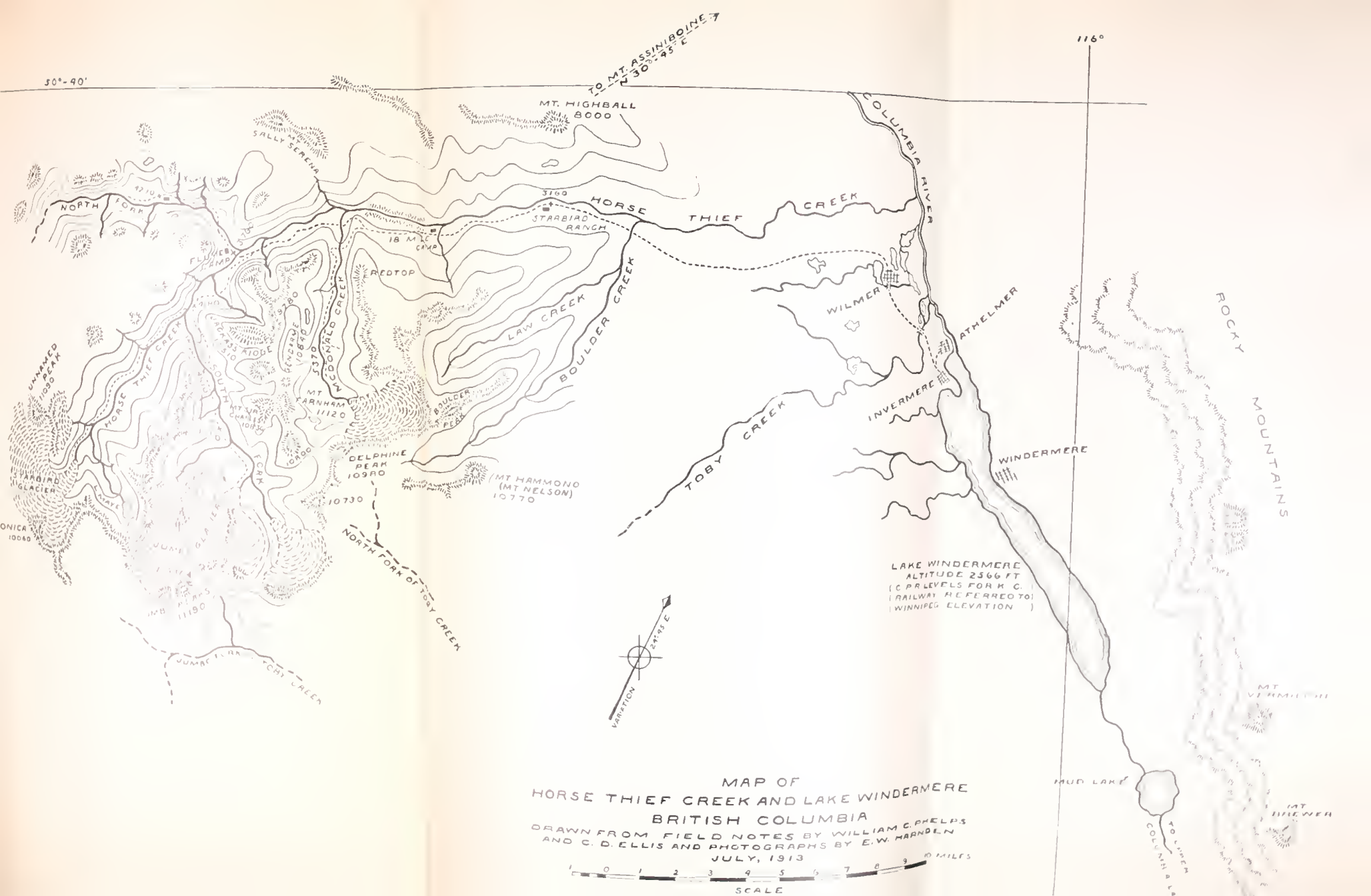
50°-40'
TO MT. ASSINIBOINE
V 30°-45' E
116°
MT. HIGHBALL
8000
SALLY SERENA
NORTH FORK
HORSE THIEF CREEK
STARBIRD RANCH
3160
18 MILE CAMP
REDTOP
FLEET CAMP
MACDONALD CREEK
LAW CREEK
BOULDER CREEK
COLUMBIA RIVER
WILMER
ATHELMER
INVERMERE
TOBY CREEK
WINDERMERE
ROCKY MOUNTAINS
UNNAMED PEAK
11090
HORSE THIEF CREEK
ARCADIA GLACIER
MT. FARNHAM
11120
DELPHINE PEAK
10980
10730
(MT HAMMOND
(MT NELSON)
10770
NORTH FORK OF TOBY CREEK
LAKE WINDERMERE
ALTITUDE 2566 FT
(C.P.R. LEVELS FOR B.C.
RAILWAY REFERRED TO
WINNIPEG ELEVATION)
VARIATION
21°-45' E
MUD LAKE
MT. HAMILTON
MT. HOWSER
TO LAUSEN
COLONEL'S LEG
MAP OF
HORSE THIEF CREEK AND LAKE WINDERMERE
BRITISH COLUMBIA
DRAWN FROM FIELD NOTES BY WILLIAM C. PHELPS
AND C. D. ELLIS AND PHOTOGRAPHS BY E. W. HARNDEN
JULY, 1913
0 1 2 3 4 5 6 7 8 9 10 MILES
SCALE

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northern Selkirks, and the additional charms afforded by the Windermere Lake and Valley. These are true Selkirks. The old question, whether they properly belong with the Northern Selkirk Range, should, I believe, be dismissed. There seems to be no doubt of the reasonable continuity of the range, and certainly to those familiar with the more northern Selkirks, these mountains have absolutely the same characteristics.

Here is much to be seen; much exploring and topographical work to be done; much to interest the tramper and climber, the man who wishes to escape the commonplaces of modern civilized life.

"Thank God! There is always a Land of Beyond
For us who are true to the trail;
A vision to seek, a beckoning peak,
A farness that never will fail."

FIRST ASCENTS OF MT. FARNHAM AND MT. FARNHAM TOWER (1914)

By A. H. MacCarthy

"Absolutely unclimbable" was the verdict reported to have been left in Wilmer, B.C., in August, 1913, by a party of explorers and climbers after they had spent ten days around the base of Mt. Farnham in an effort to find a route to the summit. The report was that they had reached a point estimated to be within about six hundred feet of the top, where they encountered smooth, perpendicular cliffs that apparently girdled the whole peak and afforded no line for further ascent.

Such a decided verdict after so long an effort seemed to preclude any thought that, with but three and one-half days remaining for mountain pleasures, we could succeed in doing more than make a close examination of this wonderful peak, which the survey map shows to be 11,342 feet in altitude, and of which we had had only fleeting glimpses from the valley road forty miles away. So, in the last week of August, 1913, hastily gathering together a small outfit, Mrs. MacCarthy, Miss Broadbent and I set out from Karmax Ranch at Wilmer with a democrat and three saddle ponies. We ascended Horse Thief Valley and spent the first night at the eighteen-mile camp and the next day, branching off from the Horse Thief Road at the twenty-mile point, we drove up the Ptarmigan Mine Road for about two miles, where rock-slides and washouts forced us to abandon the democrat and use our saddle ponies and team as pack-horses. From this point the Ptarmigan Mine Road soon crosses McDonald Creek and begins its winding climb up the left bank of the stream, where the roadside along many stretches was banked with delicious wild

Photo, H. W. Gleason

EAST FACE OF MT. FARNHAM (11,120 ft.)
From Ironcap

raspberries which naturally made progress slow. However, upon rounding the easterly shoulder of this hill, we suddenly came into full view of Farnham, and even luscious raspberries were forgotten, for the view of the mountain from this point is very impressive; its bold faces offer a defiant challenge to the climber, and the whole scene is filled with a strong suggestion of defeat.

Whatever doubt any of us may have had concerning the value of a hurried trip in to see the mountain was immediately dispelled and we hastened up the valley to get a better view of it, in order to choose a camp site near its base.

Four miles of good road and an easy grade brought us to the old mine sawmill on the east side of the creek where we rested, had luncheon and let our horses graze and, during the while, feasted our eyes on the wonderful peak and its outlying tower. The whole of the easterly side of the *massif* was free of snow and ice up to within a few hundred feet of the summit, and a shoulder making down in a northeasterly direction from the base of the tower to timber line appeared through the glasses to offer an excellent line of ascent. So we decided, if possible, to make a fly camp at timber line near the base of the arête of this shoulder, and to leave the horses with our man at a base camp on the bank of the creek. Returning along the road for a quarter of a mile, we found a well defined trail through the woods leading down to a small log cabin and stable close by the creek, and directly opposite a stream coming down from the Dead Glacier to the north of Farnham Tower. Here also we found excellent feed for our horses and tethered them out. Our outfit for the fly camp was soon assembled and we set out for the site we had chosen.

McDonald Creek, whose source is Delphine Glacier, was running nearly waist deep and very swift, and there being no large trees near the east bank, we were forced

to wade across the stream, using a short drift log and our axes to hold our footing, and in this way succeeded in making the west bank without accident. After choosing a tree for our man to drop across the stream upon his return to the cabin, we began the ascent of the clearing on the south side of the Dead Glacier stream and, continuing up the face of three rock ledges and intervening timber stretches, we reached the edge of timber line eighteen hundred feet above the cabin. Except for the lack of water, this point proved to be an ideal spot for our fly camp, with plenty of firewood, good protection, and but five minutes from the base of the arête, while convenient snow patches a few hundred feet below and to the west of the site, solved the water problem. We then hastily arranged our camp, had supper, and made for the base of the arête to study it before darkness set in.

This examination seemed to make us stronger converts than ever before to the rather doubtful maxim that "Difficulties disappear as you approach," for the arête and the stretches around the base of the tower to the main ridge seemed to be of excellent rock and much broken, so that there would be an abundance of foot and hand holds everywhere. True, from our position, we were unable to see the actual peak, but the whole route to the main ridge just south of the tower was in plain view, and looked so promising that we resolved to have a try at it at daylight the next morning. We had reckoned, however, without considering our arch-enemy, for by 10 p.m. Farnham and our camp seemed to have become the special objects of his attack, which continued during the whole night and, at daybreak, through occasional rifts in the clouds, we saw our mountain a complete mass of snow and ice; with its perfect dry rock ledges it had lured us to its base only to cast an icy blanket on the whole project, so that with but one day

left for a climb the situation was hopeless, and we had simply to pack up and beat a retreat.

This reconnaissance nevertheless was not in vain. The near view of the mountain showed that it would afford at least two intensely interesting and serious climbs; our fly camp site was proven to be an excellent spot from which to begin attempts of both; and setting it down in our calendar as the first item for the next season, we sent word to Messrs. Forde and Foster that we had found a "Hump of Nature" worthy of their best efforts, and invited them to make up a party of four for the spring of 1914.

Heavy snow-falls during the winter, work at the ranch and other business all combined to prevent a trip in to Farnham before the Club encampment in the Little Yoho Valley in July, and then came the strife in Europe and official duties to command the full time and attention of our friends Forde and Foster, leaving Mrs. MacCarthy and me with our resolution and our mountain, a combination that seemed hopeless.

Reaching the sixty-eight mile post upon our return from Golden to Karmax, Farnham's Tower again presented its defiant challenge and though conscious of our limitations, we again accepted it forthwith, at that time little realizing the excellent assistance we were to have. Upon our arival at the Ranch we were most agreeably surprised to find a telegram from Conrad Kain saying that he was leaving the Yoho Camp on his way to New Zealand and, as his steamer was delayed in sailing, could spare us a few days in case we needed his services; a sheer bit of luck indeed, for we felt Conrad was exactly the known quantity to solve our problem.

At 9.30 p.m. on August 8th we set out from Karmax with a democrat and two saddle ponies, the party consisting of Mrs. MacCarthy and me, Conrad Kain, John Hanley, our gardener, and Peter Murray, a

neighbor. The barometer was set at 3,200 feet, the determined altitude of the ranch-house site and, although somewhat overcast, the weather seemed propitious for the undertaking. By seven o'clock that evening we again had our base camp well established at the log cabin beside MacDonald Creek, and in the bright starlight Farnham loomed up across the valley, showing fresh snow on its ledges from two to three thousand feet below the summit.

The morning broke clear and barometer steady at 5,350 feet. Our fly camp outfit was assembled, and at nine o'clock we crossed the creek and ascended the northeast ridge to the base of the arête, the same as the year before, reaching the camp site at 11.45 a.m., with the barometer reading 7,200 feet. After arranging a system of signals between the fly and base camps, Hanley and Murray returned to the base camp; Hanley to go back to the ranch with the team, and Murray to care for the saddle ponies and keep a look out for our signals. During the forenoon the sky had become overcast and by 3 p.m. the peaks were all shrouded in clouds and a drizzling rain set in. The barometer, however, remained fairly steady, and by nine o'clock when we turned in the sky was again clear.

At 6 a.m. on the 10th, with clear sky and the barometer at 7,250, we left camp and started up the shoulder, keeping to the south of the arête in order to take advantage of a series of easy, convenient ledges and to avoid the many sharp rises and drops in the arête. Rounding a "rib" directly below the easterly side of the tower we surprised two fine white goats not a hundred yards away. Our surprise apparently was greater than theirs for, although they gazed at us for some time to satisfy their curiosity and then leisurely worked an impossible traverse out of sight, we were left still standing with a refractory kodak.

Our southerly course up an irregularly defined rib or buttress finally brought us to the base of a broad, crescent face that extended up toward the main ridge south of the tower for two thousand or more feet, and was so steep and smooth that we decided to avoid it, so worked back toward the arête. The large, apparently permanent, snow patch at the head of the first couloir south of the shoulder and directly east of the tower was reached at 7.30 a.m., barometer reading 9,000 feet, and here the course was again shifted southward following the general lines of the buttress. At 9,700 feet the buttress joined the arête, which point we reached at 9 o'clock, when we roped with Conrad leading and Mrs. MacCarthy between us.

The arête, the same as most of the stretches below, proved to be far more difficult than we had anticipated. Several very interesting "facets" were encountered and were negotiated by the gymnastic stunt of extending the arms and legs to the extreme limit and then gradually shifing the balance from the rear to the forward supports, while the sheer drop of a thousand or more feet directly below strongly suggested the advisability of the right hand and foot letting the left hand and foot know just what they were doing before the responsibility was actually shifted. Although the arête and face of this shoulder are much broken, we frequently found ourselves in little arenas presenting difficulties on all sides; faces too high to reach to the top and too smooth to afford any hand or foot holds; large masses with very small cracks and niches which carried one around a sharp edge that had to be straddled from an insecure footing, and with a guess as to what was on the other side; or, perhaps, a way out with easy ledges and good holds, only to find oneself further away from the goal than before. The real interest and difficulties of this climb began the moment the base of the shoulder was tackled and no muscle of the body

felt that it had been neglected by the time the base of the tower was reached.

At the start we imagined that an hour and a half's time would see us at the base of the tower; however, the first one-half hour's work was sufficient to alter our estimate and we felt satisfied with our progress when we reached the red ledges just east of the tower base, at an elevation of 10,100 feet, at ten o'clock, the last four hundred feet on the arête having taken one full hour to negotiate. By a strange coincidence, all at the same moment seemed to forget that only four hours before, sausages, bacon and toast had been neglected in the frying pan, and with one accord we shifted a good amount of cargo—our first tribute to this wonderful rock climb.

The next stretch was a horizontal traverse round the east and south sides of the tower on narrow ledges of red shale, the strata being about six inches in thickness, much broken and projecting, but a few inches beyond each other, so that the face formed lay at an angle of about fifty degrees, and finally joined the smooth crescent face to which I previously referred, the whole affording a quick line of descent of several thousand feet for anyone who might happen to go that way. Extreme care was required here to test every footing and to see that the strata were neither broken nor lying on a loose base, as a slip by one meant a slip for all, for in long stretches there was nothing to afford an anchorage.

At 10.30, elevation 10,050 feet, we reached the south side of the tower, directly below where the main ridge joins it, and here we found a fine pocket hollowed out, fully fifteen feet long, seven feet high and extending into the cliff ten feet or more with smooth floor; an excellent refuge from a storm for all directions but the east, and a fine bivouac from which to explore the many chimney routes up the tower. As our quest, however, was the main peak, somewhere beyond the many high points to

Photo, E. W. Harnden

NORTHWEST FACE OF MT. FARNHAM
Showing Route of Ascent

the southward along the main ridge, we continued along the ledges, now turned to yellow sandstone, and ascended a short, steep ice couloir, reaching the top of the main ridge at the second cut south of the tower at 11 a.m., barometer reading 10,250 feet. From this point we had our first view of the stretches to the westward of Farnham, and were amazed to see the vast alpine field that extended for miles to the north, west and south, a wonderful field of snow and ice, pierced by numerous massive peaks rising far above the 10,000-foot level; but as we still had no glimpse of our goal, we reserved the pleasures of the panorama and began the climb along the crest of the ridge. The main ridge has a line of high points lying almost due north and south; the east side of the ridge, save for a few extremely steep ribs, is a series of huge precipices; while on the west side there is a succession of slopes varying from twenty to sixty-five degrees with the horizontal, the flatter ones covered here and there with snow patches and the steeper ones with glare ice or slightly covered with a snow crust.

Conrad laid our course as near to the crest of the ridge as large boulders and snow-cornices would permit, and by cutting 162 ice-steps in slopes varying from twenty-five to forty-five degrees, we passed over the first snow-capped peak at 10,450 feet, rounded the base of two large gendarmes at 10,600 feet, and reached the base of the high tower which rises a hundred and fifty feet or more from the very crest of the ridge, the barometer there reading 10,700 feet. This high tower we at first took to be the main peak, as its appearance agreed with the first report we had of the mountain. From the ridge it was a straight rise with overhanging ledges at intervals to block an ascent; the same was true of the west side; and on the east side its face joined the huge precipice below the ridge, while its south side was screened from view. Thus it stood before us practically unassailable, and at first seemed to be a complete barrier to our further

progress along the ridge. The face towards us was clearly hopeless and, after an examination of the east side, Conrad pronounced it to be the same, so that our only hope was to negotiate an extremely steep ice-slope along the west side whose face seemed to lie almost in the same plane as the sheer wall itself but which finally flattened out a thousand feet below into a névé that shortly broke over a high precipice. It, indeed, was no inviting slope for high ice work, especially for the one cutting steps, and we were much relieved to find jam against the cliff a narrow width that had sufficiently melted and was filled with new snow to afford a passage, although it was only after a most careful study of the situation that Conrad consented to risk such a traverse, for he had to reckon with three very dangerous features, any one of which might prove disastrous.

First, along the full length of this tower of a hundred and twenty yards the overhanging ledges were much broken and liable at any minute to drop some of their load, as our frequently marked narrow path showed had lately happened; second, this ice snow-line might give way at any point and open up a deep bergschrund to receive us; and finally, as with all traverses along such snow-crests, a foot suddenly going deep down on one side is liable instinctively to lurch to the other side to regain balance, and on such a steep slope as this the lurch would almost certainly carry one beyond his balance and cause a tumble down the slope, inevitably carrying the other members of the party with him. At no other point along the whole ascent and descent did Conrad evidence so much concern, and a little study of its possibilities convinced us that this stretch, although not in itself very difficult, was in reality the most dangerous section of the whole climb.

At the south end of this ice-slope we ascended a very steep, broad, ice-coated couloir by means of cut steps between small projections of rock that came through its

white face. At the head of this came a very steep stretch of narrow ledges badly broken and covered with loose rocks, making them extremely dangerous. We finally landed on an easy slope to the summit of the tower, barometer reading 10,850 feet. Not until we reached this point were we able to determine to a certainty the position of the main peak, which we then saw at the southern end of the ridge, and which was still a considerable distance away, with two very questionable-looking ledges, the last defences against our attack, yet to be assailed before the summit slope could be gained.

After a short drop down along the main ridge, we began a stretch of steep rock climbing and soon reached the base of the first ledge, most of which was covered with fresh snow. This greatly added to the difficulties of the climb, for the temperature was low, a cold wind blowing, and we were forced to discard our mittens and dig into the snow with bare hands in order to take advantage of the very few narrow hand holds that the rocks presented, so that by the time we had gained the top of the first ledge our hands felt like lumps of ice. But vigorous rubbing soon brought the stinging tingle of life into them, and in a few minutes we tackled the second ledge, which was of the same character as the first, although, perhaps, on the whole more difficult. One large boulder face, somewhat broken and, from a distance, looking inoffensive enough, on close examination proved to be otherwise as it presented a slight overhang just above its lower hand and foot holds, so that it required first a position with the hands back of the vertical line of the footing, then a right foot side step up and a shift of the balance to this foot before the next right hand hold could be gained at the corner of the boulder above this footing. Next came a precarious hold with the left hand on the snow-covered edge of the rock while the right foot slowly shifted to share its support with the left, then a slow straightening of the knees until the shoulders topped

the edge, a shift of the left elbow over the edge and a push and a crawl to belly over. It struck us as rather strange that so near to the summit in practically the only line of attack we should find rather a supreme test for cautious climbing and that on this day, the first time that man had ever tackled it, a new snow and cold wind should rally to the defence. Doubtless there are a great many such little stretches of rock on cliffed mountains that are never noticed, because they do not lie exactly in the line of ascent which, while appearing to be much broken and easy, the difficulties due to the odd relative position of holds and supports are not apparent to the eye. Here is where the maxim must be reversed to "Difficulties appear as you approach," proving that it is a poor rule that does not work both ways.

Beyond this boulder and the balance of the second ledge, the ridge gradually flattened and broadened out, and here Conrad, reaffirming his allegiance to the suffragette, dropped to the rear and invited Mrs. MacCarthy to lead us to the summit, which we reached at 3.24 p.m., barometer reading 11,075 feet.

Having been detailed as commissary officer of the expedition, I took care to provide for a reasonable demand and then added some for eventualities, but when our luncheon was over it appeared that "eventualities" had better begin feasting on the scenery, for three hard boiled eggs and some nuts were all that was left in the larder.

The panorama from the peak was very inspiring, covering a vast stretch from Assiniboine up along the Great Divide far beyond Stephen, then circling round to Sir Donald and a vast field to the westward and far south. Our interest soon centering upon the section immediately surrounding us, we picked out more than a dozen peaks within a radius of ten miles that seemed to be about on a level with Farnham, each with one or more large névés and glaciers, and three of them of vast dimensions.

After building a six-foot stoneman and placing our record in it, we began the descent at 4.15, realizing that we stood little chance of getting off the mountain before darkness. Back-tracing our line of ascent, we gained the base of the high tower at 5.30, barometer showing 10,750 feet, and then, leaving the old line, we worked a traverse down the wet, slippery slopes on the westerly side, setting a course above the line of cliffs that finally landed us in the saddle to the west of the north tower, reaching that point at 7.50, altitude about 9,500. It was now evident that unless we could reach some long scree slopes well to the westward and thus have an easy, quick line of descent to the Dead Glacier about 2,300 feet below, we would have a slow time of it on the steep ledges down from the saddle. This effort was soon proven to be hopeless on account of several wide gorges that cut deep into the face of the cliffs, leaving perpendicular side walls that made a direct crossing impossible.

It had now become dark excepting for occasional intervals of moonlight between passing clouds, so our plan was changed to take advantage of every downward lead, but always keeping the general course westward towards the scree runs. The extreme care that was required in working along the steep, narrow ledges, and trying to keep the rope clear (Conrad had declared we should treat the rope as we would treat our mother), made progress very slow, and Conrad proposed a shift directly towards a snow couloir, which we gained after making a fifty-foot descent of the side of a gorge wall. The snow covering on the ice in this couloir was very thin and soft, so that a direct descent on it was impossible. We, therefore, took to the side, faced out, and with the additional light reflected by the snow were able to make good time by keeping one foot on the edge of the snow and the other on the adjoining rock ledges. This couloir ended still several hundred feet from the steep little snow fringe above the glacier, and the next hundred feet or

more were made by towing down a snow patch, which ended with about ten feet of wet ice that fortunately had a large projecting rock as a base to catch us.

While working the traverse down Conrad had seen a narrow, rather deep water course, that apparently led directly to an ice tongue which seemed to join the rocks at both sides of the cut and, as it was now eleven o'clock and our course had brought us near to it again, we decided to try this as a quick means of getting on to the glacier. The easiest part of this experiment was in dropping down the side into the bed of the rock shoot, but its base ledges gradually got larger as we descended until we were about thirty feet above the ice, and here we found the walls worn perfectly smooth and the base suddenly dropped off into a huge black cavern under the tongue twenty feet or more from the lowest point we could reach. The stream gave us a liberal sprinkling during the climb up the shoot to the point from which we had dropped into it, the net result being two hours of interesting, though useless, work with still several hundred feet to descend before we could reach the snow fringe of the glacier which we now felt convinced would present a bergschrund to amuse us, a sort of Midsummer's "Nightmare" rather than a "Dream."

Having been on the go from 4.15 p.m. to 1 a.m. with no stop other than just long enough for a drink, we felt it was time for a little rest, when we could enjoy our one hard boiled egg apiece and some nuts, so Conrad bayed at the moon and we feasted. The clouds rapidly disappearing, the moon gave us a good view of the stretches below, and after a little study we soon chose a course down. A steep descent over the side of a deep cut suddenly landed us on a scree-covered slope that led directly to a snow slope, and this finally flattened out on to the glacier itself, landing us on the rock-strewn ice at 2.50 a.m., elevation 7,200 feet. After crossing the main part of the glacier we unroped, passed over the huge rock

moraines fed by Farnham's Tower and climbed up to our camp, reaching there at 3.45 a.m. Half an hour later, just as the eastern sky began to signal the approach of day, we sat down to enjoy last night's supper and to-day's breakfast in one and the same dish.

My diary showed the following:

Elapsed time from camp...22 hours 15 minutes
Time for ascent..... 9 hours 24 minutes
Time for descent .....11 hours 30 minutes
Time on rope.....17 hours 10 minutes

Thus having conquered our "Hump of Nature," we defied Nature's custom and turned in as the sun rose.

After a sound sleep and a second breakfast near lunch time, we spent the day studying the Tower through glasses and resting around the camp fire while listening to Conrad's delightful reminiscences and philosophy which ranged all the way from snaring mice in Siberia to the intricate problems of true government. The next morning at 5.15 a.m., barometer reading 7,300, we were off from camp and made directly for the arête, having decided this time to keep to it as much as possible. Its lower stretches were new to us and proved to be equally as interesting as the upper section we had already climbed.

At. 8.30, altitude 9,700 feet, we roped and at 9.15 reached a sharp point of the arête one stretch below the Tower, and here stopped for a snack while examining the broad chimney that runs up the centre of the Tower's east face. From a distance this chimney looked feasible for us, but a close inspection showed a decided overhang running up for twenty feet or more, which, while doubtless possible for one having plenty of time and with weather conditions such as to make it safe against the dangers of falling ice and rocks, was sure to take too long on a first ascent, when the difficulties beyond were still unknown. We, therefore, continued up the arête to 9,950

feet and then worked round the ledges to the south of the Tower beyond the first outlier and to the base of a black rock-face running up for about eight feet at an angle of seventy degrees, reaching it at 10.15, barometer 10,000 feet.

This rock-face is but ten minutes traverse from the cave to which I have already referred. The stretches between supports and holds at several points on the face were uncomfortably long and some of the cracks were very shallow, but the rock was firm, and had we been wearing kletters or scarpetti instead of heavy edge-nailed boots it would have been an ideal stretch of face rock-work; a soft corded sole would have afforded a footing on the rough surface between the points of natural support, and even at those points would have secured a firmer footing. A stretch to the right along the top of this face, then up an ice patch, and the contact crack of a large outlying boulder brought us to the base of a series of broken chimneys, the trend of which was to the westward toward the back of the Tower, while to the right side not far away was a straight chimney that seemed to extend five or six hundred feet to the very top of the Tower. The inner face of this big chimney dropped back at a slight angle and was coated with ice, while the side walls were too far apart for straddle climbing, so Conrad chose the broken line as it was clean and dry and led to the broken side of the Tower.

At the top of the first chimney-stretch a side ledge pinched the width and depth so that the body even unencumbered by a ruck sack could not pass it, thus making a crawl out and over its face necessary, and so adding interest. There were so many chimney routes, none of them showing much of the stretches beyond, that it was hard to do other than guess at the best one. Our guesses proved lucky, for after four hundred and fifty feet of fine chimney work we reached the top of the most southerly part of the Tower at 11.50 a.m., elevation 10,550

Photo, E. W. Harnden

MT. FARNHAM (11,120 ft.) AND MT. FARNHAM TOWER (10,840 ft.
West Face from Mt. Sir Charles

feet. Instead of the broad, flat top we expected to find at this point, the westerly side dropped off at a very steep angle, and the same was true for about three hundred yards, as it gradually ascended to the level of the Tower mass, which we reached at 12.03, Mrs. MacCarthy again leading, and barometer reading 10,625 feet.

The first demand after a hasty look around was for a drink and, as there was not even a trickle to be found on the top of the tower, we were shown how to meet such a situation. The sun was warm and plenty of snow at hand, so large slabs of rock were placed at an angle towards the sun, the outer ridges trimmed with a bank of snow, the inner surface covered with a thin rough coating and cups placed at the base of the slabs where the snow-banks came down to a spout, and soon we had abundance of water. It was while enjoying a hearty luncheon that we noticed the ledges we had worked down from the saddle to the Dead Glacier two nights before, and the sight of them made us realize that under cover of darkness one sometimes ventures where one would not think of attempting to go when dangers are spread out before him in daylight.

Another six-foot stoneman was built, our records placed in it, and at 1.45 p.m. we began the descent; following a course down the broken ledges on the southwest face of the Tower which gave us many rather difficult and very interesting stretches and landed us on the west side of the main ridge leading to the main peak.

After a few minutes along the crest of the ridge and traverses of its westerly face, at 2.45 p.m., barometer 10,300 feet, we reached our familiar ice-couloir at the second cut of the ridge where we had made it on our climb of the main peak. Descending the couloir to the yellow ledges, we worked to the northwest along them and the red ledges around the Tower to the northeast arête, reaching it at 3.30, and then continued down the arête

for two hours to 9,000 feet, where we unroped and took to the ledges of the shoulder and its many convenient scree patches, which finally landed us in camp at 6.20 p.m.

Thus having made all the high points along the main ridge and climbed the Tower, we felt we thoroughly knew the mountain, and were much pleased to have Conrad emphatically declare that the climb of the main peak by way of the northeast arête is fully as interesting, difficult and dangerous, and far more strenuous than the climb of the famous Matterhorn.

The stretch from the fly camp to the base of the Tower corresponds to the stretch from the hut to the shoulder of the Matterhorn; the ridge with its gendarmes offers the same technical difficulties as those encountered on the Matterhorn upper stretches, while the sheer drops at many places correspond to the "exponiert" of the Matterhorn to the glacier on the Swiss side of the mountain. Conrad also said the Tower climb is typical of the climbs in the Dolomites, and from the base of the arête to its top the finest rock climb he had ever made in Canada. While I have no personal knowledge of the Matterhorn or the Dolomites, I can frankly say that from what I have so far seen of this region it is an excellent rock climbing district, and Farnham gave me the most interesting and satisfactory rock climb I have ever made.

THE TRAVERSE OF MT. McBEAN, SELKIRK RANGE

By J. R. Young

On 18th August, 1914, a party of three left Glacier House with a view to ascending the two peaks of the McBean *massif* from the Van Horne Valley. The party consisted of Edouard Feuz and Christian Häsler, Swiss guides, and J. R. Young, from Glasgow, Scotland. Starting at 4.40 a.m., the top of the Asulkan Pass was reached in about four hours. As we were carrying camp equipment and provisions for about ten days, a pack-horse had been taken to the end of the Asulkan Valley trail, whence we shouldered the heavy packs ourselves. The carrying of these packs was greatly facilitated by the provision of back-boards of the same pattern as those in use by the peasants in Switzerland for carrying their heavy loads of firewood, etc.

The descent on the south side of the Asulkan Pass is chiefly down steep scree slopes until the Geikie Glacier is reached some 3,000 feet below. From the snout of this glacier we picked our way, now in the bed of the glacier torrent, now breaking through the dense brush, which thickly clothes the banks of the stream in the upper part of the Fish Creek* Valley. By four o'clock in the afternoon we had reached an ideal spot for a camp. The aneroid made the height as 3,700 feet. Here a grove of pine trees replaced the alders and afforded a clear space in which to pitch the tent, while their needles, carpeting the ground, provided a couch at once dry, fragrant and springy.

Following the line of least resistance, our route hitherto had brought us down the right bank. It was,

*Incomappleux River.

therefore, necessary to effect a crossing sooner or later to enable us to ascend the Van Horne Valley. Some distance ahead the river appeared to flow through a canyon; while the waters of Geikie Creek would soon be swollen by those from Van Horne and Mitre Creeks. The guides accordingly decided to make the crossing here. A great pine grew near the bank, and this they soon had felled, and in doing so had skilfully placed it in the desired position across the stream. But the day had been warm and so the creek was very full, and our bridge seemed in danger of being swept on down stream. It, therefore, became necessary to remove the branches at once. This done, we all joined in the preparation of the camp.

Rising at five o'clock the following morning, we struck camp, cached half of our provisions, and got away at eight o'clock. The creek was now much shrunken and its waters no longer swept over our bridge. Having crossed, we at first held down the bed on the left-hand side, where the going was good. Later, approaching the junction with Van Horne Creek, we took to the woods, and, avoiding a clump of devil's club on our right, we climbed up through thick brush into open pine woods and soon struck a game trail. Van Horne Creek above its junction with Geikie Creek flows through a gorge. We had, therefore, first to cross Mitre Creek by putting down another tree. The going still remained fairly good as we cut across from this to Van Horne Creek. Here we soon found a fine tree for a bridge, but it fell foul and, breaking in two, was swept down stream. Failing to get a second one at hand, we had to continue up the right bank for another hour through nettles, devil's club and thick brush. But we were now in luck's way, for we discovered a large, uprooted tree lying right across the creek. Here we crossed at 1.30, the aneroid reading 4,250 feet, and two hours later we stopped for the night on open ground, which, when we had cut away the high weeds, proved also

to be very stony. We made the height of this camp 4,450 feet.

The following morning, August 20th, was again fine. Rising at 3.20 we got away from camp at 4.50, making for Mt. McBean. Our way at first led up a steep slope with thick brush and many decaying trees, until, about the 5,650 feet level, we emerged from the woods and started up the east ridge of Tomatin Peak. Three thousand feet higher we left this ridge and made our way across and up the southeast face, until the south ridge was joined about four hundred feet below the top and the summit (9,445 feet) gained at 10.15 a.m. The rocks had been easy throughout and on the whole good. Having erected a cairn and left our cards, we descended to the Tomatin-Findhorn Col by a very easy route. The height of this col we made 8,900 feet.

Shortly after leaving the col on the ascent of Findhorn, a gap in the north ridge is encountered. This we descended on our right and climbing the face opposite, we soon took a granite ledge on our left which led up and across the west face of the mountain by an easy traverse. Having reached a point on this beyond a vertical line from the summit, we left the ledge and cut up some steep ice, which soon gave place to steep, slippery rock. This was succeeded by a loose section, after which the south ridge was gained a little below the summit (9,501 feet), and the latter reached at 12.25. Here we again performed the usual rites by erecting a cairn and placing cards therein. We now descended by the south ridge to the col, and thence down the glacier on our left. This glacier gave us considerable trouble and it was 3.30 before we got off. Camp was regained at 5.20.

We rose at six the next morning; but had to dry the tent, which was very wet with dew, and so did not get packed up and away until 9.20. Later on a severe thunderstorm broke over us. This made us take thought

for our last bridge over Geikie Creek. Fearing that this would be swept away in the flood, we pushed on as fast as the difficulties of the forest and the weight of our packs would allow, and were glad, on reaching the creek, to find our bridge still there, although the water was by this time pouring over the top at one place, thereby greatly adding to the difficulty of the crossing for the "tenderfoot" member of the party. We now pitched camp on our old site, but ere this was completed, the storm broke afresh and the creek came down in spate, so that we felt very thankful that all our bridges were now behind us.

It had been intended to go up now to the Dawson Camp and to spend two or three days in this group; but the next day broke wet and lowering. Having struck camp, we got started at 9.25. Two hours later, we stood, three dripping mortals, in the middle of the Geikie Glacier at the parting of the ways. Snow, sleet, and rain alternated with each other in rapid succession. The question now was Dawson Camp or Glacier House for the night. A steadily falling barometer and a shortage of time in which to carry out other plans, which we had for the immediate future, decided the day. So having spent an hour discussing the matter, we jettisoned our remaining provisions and set our faces towards the Asulkan Pass. Glacier House was reached at 5.45.

But for the disappointment at not getting something in the Dawson Group, the expedition had proved very successful and thoroughly enjoyable. Of the larger fauna we had only sighted one Rocky Mountain Goat. The tracks of bear were seen everywhere in the Fish Creek and Van Horne Valleys, but no chance of a shot was obtained.

SCIENTIFIC SECTION

MOTION OF THE YOHO GLACIER 1912—1914

By Arthur O. Wheeler

The customary measurements for yearly motion of the Yoho Glacier were made on July 22nd, 1913, and again on August 6th, 1914. I was most effectively assisted in these operations by Mr. Gordon Cameron, of Victoria, B.C., a member of the Club.

It will be seen by the report in the 1913 Journal that when the measurements were made on 16th September, 1912, Nos. 1 and 2 of the six metal plates set in line across the ice forefoot in August, 1910, could not be found; so, when the usual angle readings from each end of the base line previously established had been taken on the remaining plates, these plates, Nos. 3, 4, 5 and 6, were reset in the same line across the ice, as nearly as possible at regular intervals.

Rate of Flow

It has been the practice for some years to take a photograph of the entire front of the icefall from Station E, where the pony trail to the glacier leaves the timber and takes to the right (west) lateral moraine. On reaching the spot in July, 1913, it was seen at a glance that the shrinkage of the once bold, cliff-like front of the forefoot was progressing rapidly, and that the magnificent ice arch, for many years the most striking characteristic of the Yoho Glacier, was now practically non-existent, while the place where it should have sprung was a jumble

of crystal ruins. In August the cave should have shown at its best, and the absence of this dominating feature was most apparent. It was further seen that the spectacular icefall that had for the past twenty years delighted mountain travellers was slowly, but surely, developing into a smooth, lumpish and correspondingly uninteresting terminal.

Looking further beyond the forefoot to the labyrinth of séracs, that mass against the skyline, it was seen that these also are losing their bold front and are already beginning to show an assimilation of outline that will, in a few years' time, present a smooth flowing surface in place of the deeply crevassed and broken exterior to which one has been accustomed.

Where formerly the gaining of access to the ice plateau, across which the plates are set, had been a process of much step-cutting, in July, 1913, a few ice steps enabled us to reach slopes that could be walked up with slight assistance from an iceaxe, and in August, 1914, even ice steps could be dispensed with.

In both years the plates were found without difficulty, the ice tongue crossed and the angles read from both ends to the four plates. Having thus fixed the distance of surface flow, the plates were again set in line between the north end of the base and a large, solitary, white stone projecting from the opposite cliff, high up, a point that has been used for several years, but will soon be useless owing to the portion of the ice forefoot that can be used, having moved from under it.

On reaching the left (east) side of the ice forefoot, another and most marked indication of shrinkage became apparent.

A considerable portion of the stream flowing from the Yoho Glacier, which is the main source of Yoho River, comes in reality from the large body of ice lying between Mts. Balfour and Gordon. This stream, after leaving the

ice, presents two magnificent drops, knows respectively as Diablerette Falls and the Fall of the Waves. Near the Yoho Glacier, it flows into a narrow rock cut, and disappears under the ice a short distance above the point where the line of plates was laid out; then, flowing under the forefoot, the torrent joins the flow from the Yoho Glacier and re-appears from beneath the ice arch at the end of the tongue. In July, 1913, the stream from the glacier between Mts. Balfour and Gordon was seen to flow in its canyon beside the ice for a considerable distance below where the measuring line crossed, although previously it had disappeared above it; and in August, 1914, only one small ice bridge enabled a crossing to be made to the east side of the valley. A still further shrinkage will destroy this bridge, and the canyon, filled with rushing water, will then become a serious problem for those desiring to cross from one side of the valley to the other, unless the decreasing steepness of the slopes of the ice tongue make them easy to travel over.

Table Showing the Motion of Plates Set on the Yoho Glacier

Movement between September 16th, 1912, and July 22nd, 1913=310 days:

PLATE	NO. 3	NO. 4	NO. 5	NO. 6	REMARKS.
Total Motion.....	71 ft.	103 ft.	100 ft.	95 ft.	Mean average daily motion of plates, 3.74 inches.
Yearly Motion.....	84 ft.	121 ft.	118 ft.	112 ft.	
Average Daily Motion.....	2.75 in.	3.98 in.	3.87 in.	3.68 in.	

Movement between July 22nd, 1913, and August 6th, 1914=380 days:

PLATE	NO. 3	NO. 4	NO. 5	NO. 6	REMARKS.
Total Motion.....	165 ft.	114 ft.	179 ft.	180 ft.	Mean average daily motion of plates, 5.03 inches.
Yearly Motion.....	158 ft.	109 ft.	172 ft.	173 ft.	
Average Daily Motion....	5.21 in.	3.60 in.	5.65 in.	5.68 in.	

By Comparison

1906-1907—Mean average daily motion of plates, 3.15 in.
1907-1908—Mean average daily motion of plates, 3.12 in.
1908-1909—Mean average daily motion of plates, 3.23 in.
1909-1910—Mean average daily motion of plates, 3.11 in.
1910-1912—Mean average daily motion of plates, 3.09 in.
1912-1913—Mean average daily motion of plates, 3.74 in.
1913-1914—Mean average daily motion of plates, 5.03 in.

The mean average daily motion of the plates is a mean of the average daily motions for each plate, and should give an approximate of the average daily motion of the surface portion of the glacier on which the plates rest.

Up to September 16th, 1912, the average daily motions of the original six plates were taken into account to obtain the mean average daily motion. From the date named only the average daily motion of Plates Nos. 3, 4, 5 and 6 have been used, Nos. 1 and 2 having been lost (see Canadian Alpine Journal for 1913, pp. 54 and 55). The fact that subsequent to September, 1912, there was a marked increase in the mean average daily motion is likely due to the lost plates having been set where the motion of the ice was slowest.

The very marked increase from July 22nd, 1913, to August 6th, 1914, can only be accounted for by general shrinkage and disintegration of the forefoot. This cause is further illustrated by the erratic directions of the movement of the several plates, as shown by the angular measurements from the base. Prior to the year 1913, the plates had always moved in a generally parallel direction; they were now found to be all at variance to such parallel direction, and the two outside plates, Nos. 3 and 6, had shot off diagonally towards the outside edges of the forefoot. Deep crevasses pierced the formerly solid and comparatively smooth plateau where the plates were usually

set, and it would seem as though several segments of the ice were being forced more rapidly in different directions.

On August 6th, 1914, the four plates were set out as usual, and it will be interesting this year (1915) to observe what has happened and whether the above surmise is warranted.

For Advance or Retreat

The usual measurements were made from Marked Rocks Nos. 1 and 2 on the east side for 1913 and 1914, and from the Sherzer Rock on the west side for 1914.

Table Showing Measurements to Nearest Ice

YEAR	FROM ROCK NO. 1 LEFT SIDE OF STREAM	FROM ROCK NO. 2 LEFT SIDE OF STREAM	FROM SHERZER ROCK RIGHT SIDE OF STREAM
1910	167.0 ft.	204.0 ft.	201.0 ft.
1912	218.5 ft.	255.5 ft.	246.0 ft.
1913	239.0 ft.	273.4 ft.	.....
1914	277.6 ft.	313.0 ft.	222.7 ft.

By Comparison

1906-1907—Average retreat of ice forefoot, 19.6 feet
1907-1908—Average retreat of ice forefoot, 37.5 feet
1908-1909—Average retreat of ice forefoot, 39.0 feet
1909-1910—Average retreat of ice forefoot, 46.5 feet
1910-1912—Average retreat of ice forefoot, 49.3 feet
1912-1914—Average retreat of ice forefoot, 31.1 feet

Total retreat 223 feet

In connection with the above, it will be noted that, although the average daily motion of the plates was more rapid for the period 1912-1914 than for the previous two years, yet the retreat of the ice for the same period is less.

Annual Change in Formation of Ice Forefoot

The usual photographs were taken from view point 7.93 feet south of Rock No. 1 and from Rock No. 2, both on the left side of the stream. As previously stated, they

showed a most marked shrinkage and general decrease in the depth of the ice forefoot.

From Rocks Nos. 1 and 2, the most marked change is seen immediately above the stream on the right side. Here a great slab of bed-rock, with an upward tilt, has been uncovered and the ice rests upon its upper surface. Comparison with the views taken in 1912 show, also, a general withdrawal of the ice from the cliff above the bed of the forefoot on the right side.

The measurements were made while the 1914 Alpine Club Camp in the Upper Yoho Valley was in progress and the subsidiary camp placed near the Yoho Glacier, for the convenience of visitors to the Main Camp, was made the base of operations.

Photo, A. O. Wheeler

ICE FOREFOOT, YOHO GLACIER
From Rock No. 2—1914

ROBSON GLACIER

By Arthur O. Wheeler

Advantage was taken of the Alpine Club's Camp at Robson Pass in August, 1913, to repeat the measurements made on 10th of August, 1911, and, as the latter were made on August 9th, 1913, exactly two years had elapsed since the first measurements (see Canadian Alpine Journal, 1912, pp. 44 and 45).

At the time the first measurements were made it was found that no paint or brush had been provided and a difficulty arose as to how the rocks should be marked. It was solved by mixing boot grease and charcoal, which was laid on with a bit of stick. In 1913, the marked rocks were approached with much trepidation and wonder as to whether these superficial markings would have survived the winter storms of the previous two years. To our satisfaction they were found intact and almost as clear as on the day they were made.

The ice forefoot of the Robson Glacier is divided into two parts by an eminence of rock or *nunatak*, rising 100 feet above the shingle flat of the Robson Pass, and streams flow from both lobes of the ice. By far the largest part of the forefoot lies to the west of the *nunatak*, and the bulk of the run-off flows westerly from it to Berg Lake; at least, it did so in 1911 and also in 1913, although both Dr. Coleman and Dr. Norman Collie state that within their experience it has flowed easterly to Lake Adolphus.

In 1911 there was a comparatively small stream from the eastern lobe of the Glacier, of which the greatest part also flowed to Berg Lake on the Pacific side of the Divide. From this stream three small and insignificant channels branched off and flowed to Lake Adolphus.

In 1913 the above conditions were quite changed, and the entire run-off from the eastern lobe flowed to Lake Adolphus on the Atlantic side of the Divide.

The rock marked on the east side of the *nunatak* is a prominent square block of dark-blue crystaline limestone, 14½ feet by 7 feet by 7 feet high. The main stream from the ice flows to the east and immediately below it.

The rock is marked:

A.C.C.	To Ice
Aug. 10	338.6 feet
1911	

From this rock:

Distance to nearest ice in 1911=338.6 feet
Distance to nearest ice in 1913=367.0 feet
Retreat 28.4 feet

An arrow-head on the rock marks the point of measurement.

On the west side of the *nunatak* a vertical slab of blue, slaty limestone, forming its western wall, was marked in 1911. The slab shows striation and is quite smooth.

It was marked:

A.C.C., Aug. 10, 1911. To Ice 175 feet Along Wall

An arrow-head on the rock marks the point of measurement.

From this point:

Distance to nearest ice in 1911=175 feet
Distance to nearest ice in 1913=206 feet
Retreat 31 feet

In 1911 the measurement was made along the wall to where the ice of the glacier overhung it. Here there was an irregular ice cave and the torrent poured from below it immediately beside the rock wall, which, at this point had turned from a blue, slaty limestone to a whitish, crystaline limestone. In 1913, it was seen that the cave

Photo, P. L. Tait

THE ROBSON GLACIER AND PASS
Showing streams flowing East and West

Photo, F. W. Freeborn

ICE CAVE, ROBSON GLACIER
From which issues the main stream flowing West

had gone and the stream did not flow beside the wall, its old bed being filled with gravel and boulders. Thirty feet further west the main stream issued from under the ice through a fine cave (see illustration) and flowed, a swift, mud-coloured torrent, to Berg Lake.

The results of the measurements show that while the glacier and its run-off seem to be subject to important changes, but little recession had taken place between August, 1911, and August, 1913.

The most interesting feature of the glacier seems to be the vicissitudes of the two principal streams that flow from it. According to Coleman and Collie, on one of their visits these flowed easterly to Lake Adolphus; in 1911, during my visit, the entire flow, with a very insignificant exception, went west to Berg Lake, and in 1913 the larger one flowed west and the other east.

The summit of Robson Pass is a nearly level, comparatively smooth, shingle flat, of a little over a mile in length, formed by wash of detritus from Robson Glacier. The altitude of the pass is 5,550 feet, of Berg Lake, on the west, in 1911, 5,506 feet, and of Lake Adolphus, on the east, 5,523 feet. It will thus be seen that it would not require a very heavy freshet to change the course of either stream. This, in itself, though a feature of much interest, would be of no great importance were it not that the pass is situated on the main divide of the Rocky Mountain Range, of which the watershed line is the boundary between the provinces of British Columbia and Alberta. The watershed line, therefore, becomes a shifting boundary, which, again, would be of slight importance were it only the space between the rising valley slopes on each side that had to be considered. Unfortunately, this shifting boundary affects the whole of the Robson Glacier and the huge amphitheatre of ice and snow that feeds it, involving an area of more than five miles in length and several miles in width.

Should the run-off from the glacier flow east, Mt. Robson would become a peak of the Great Divide, and the watershed line would pass over Rearguard, Helmet, Robson Peak, Resplendent, and so work round to Lynx Mt.

If, on the other hand, the run-off goes west, the watershed line would ascend Ptarmigan Peak, cross Snowbird Pass and ascend to Lynx Mt., all on the east side of the glacier.

If, however, the run-off flows both ways, as happened in 1913, then the watershed line must be somewhere up the glacier, and the problem is: Where?

PLACE NAMES IN VICINITY OF YELLOWHEAD PASS

By James White

I note in Mr. Wheeler's article, "The Alpine Club of Canada's Expedition to Jasper Park, Yellowhead Pass and Mount Robson Region, 1911," Canadian Alpine Journal, IV, pp. 8, 9, references to the name De Smet or Suette and Robson. As I was responsible for the decision of the Geographic Board respecting the former, it may be of interest to recite the evidence upon which the decision was based and the later developments respecting these and other names in this area.

In August, 1845, the famous missionary, Father De Smet, ascended the Columbia River to the mouth of Pend d'Oreille River, just north of the 49th parallel; thence by way of the Pend d'Oreille, Kootenay and Columbia Rivers to the Sinclair Pass, about ten miles below Windermere Lake; thence by the Sinclair, Cross* and upper Spray Rivers to the White Man's Pass opposite Canmore.

On September 15th, 1845, De Smet headed a letter: 'Foot of the Cross of Peace," and, in it, states that he had erected a cross at the summit of the pass on the divide between the waters of the Oregon (Columbia) and

*In 1884, I was topographical assistant to the late Dr. George M. Dawson. Cross river was so named by Dr. Dawson because our Indian guide informed us that a priest had erected a cross at its source, though we were unable to find any traces of it. Being constructed of wood it would rot in a comparatively few years. I regard with much scepticism statements that relics of it have been discovered. Our Indian knew exactly where it had been erected and it is very doubtful if any wood native to that region would last nearly 70 years.

Saskatchewan. This practically identifies White Man's Pass as the one traversed by De Smet.

De Smet spent the winter of 1845-46 at Fort Edmonton and in the vicinity. Leaving Edmonton, March 12th, 1846, he travelled by dog-team to Fort Assiniboine on the Athabaska River and, thence, by the Athabaska to Jasper House, arriving there March 30th.

In his letter of May 6th, he says that, as the time approached at which he was to leave Jasper House, the Hudson's Bay employees and the Indians "earnestly begged leave to honour me, before my departure, with a little ceremony to prove their attachment, and that their children might always remember him who had first put them in the way of life. Each one discharged his musket in the direction of the highest mountain, a large rock jutting out in the form of a sugar loaf, and with three loud hurrahs gave it my name."

Leaving Jasper House, April 25th, he reached the summit of the Athabaska Pass May 1st and Boat Encampment on the 9th, thence he descended the Columbia.

A few notes from the accounts of other travellers may be of interest.

Milton and Cheadle, referring to Pyramid Mountain, say: "One of these, which has received the name of Priest's Rock, was of curious shape, its apex resembling the top of a pyramid, and covered with snow."

Franchère says that, in 1814, Rocky Mountains (Jasper) House was situated on the shore of a "Little lake," and that, from the post, "Millet's Rock, of which I have spoken above, is in full view, of an immense height, and resembles the front of a huge church seen in perspective." As it is "Miette" in the French edition, "Millet" is simply a typographical error.

In 1817, Ross Cox crossed the mountains by the Athabaska Pass. He says that, about a mile beyond a considerable tributary of the Athabaska, "we arrived at the foot of a stupendous rock, called Le Rocher de Miette, over which we had to pass. . . . A little above the southern point of the rock we observed that the Athabaska River opened into a lake about three miles in length and two in breadth, and a few miles beyond its northern extremity the river formed another lake of nearly similar dimensions. . . . At eight a.m. on the morning of the 6th we came opposite Rocky Mountain House, which is built on the western shore of the second lake. A canoe was immediately despatched for us and we crossed over. . . An old clerk, Mr. Jasper Hawes, was in charge. . . . Its lat. is 53° 18′ 40″ N. . . . The lake extended about half a mile below the house, when we entered" the Athabaska River.

This demonstrates that, at that date, Jasper House was on the west shore of Brulé Lake, about half a mile from the outlet. This is confirmed by Hector's reference in the Palliser "Journals" to "the site of an old fort just without the mountains at the Lac à Brulé." The Ermatinger Journals, 1827-28, prove that, at that time, the post was still on Lac à Brulé, but was then called 'Jasper's House." In this connection I stated, in a foot-note to the "Journals," that in Ermatinger's time, a peak on the *west* side of the Athabaska was called "Roche Miette." This, however, is an error based on the impression that the H. B. Co.'s trail was then, where it has been in recent years, viz., on the west bank, and, also, to the fact that Ermatinger makes no mention of crossing to the east shore of the lake.

In the Palliser "Journals," Hector says that "Miette's Rock is a bold object, bounding the valley of the Athabaska to the south* and resembling the 'Devil's

*An error for "east."

Head,' which lies to the north of the Bow River. . . . Jasper House is beautifully situated on an open plain, about six miles in extent, within the first range of mountains. As the valley makes a bend above and below, it appears to be completely encircled by mountains which rise from 4,000 to 5,000 feet, with bold, craggy outlines; the little group of buildings which form the 'fort' have been constructed in keeping with their picturesque situation, after the Swiss style, with overhanging roofs and trellised porticoes. . . . On the east side of the main river there is the Roche Miette which, although really some miles distant, seems to overhang the fort. Higher up the valley is Roche Jacque, and on the west side of the valley, and opposite to these two, we have the Roche de Smelt and Roche Ronde. . . . As late as 1853 there was communication at two seasons by this post with the Columbia district. . . . I found that the Roche Miette, which seemed almost to overhang the fort, is nearly at a distance of four and a half miles, while its summit is elevated 5,800 feet . . . and is said to have been only once ascended from the south side by a hunter named Miette, after whom it was named. . . To the east of the Roche Miette is a range of mountains known as the Fiddle Mountains, and separated from it by a creek of the same name. Overhanging Lac à Brulé is Bullrush Mountain, and between it and Roche Ronde, which is next furthest to the west, Moose River flows to the S.E. . . . On the 11th we reached a point opposite Miette's House, where was once a trading post, at the point where the track branches up the Caledonian Valley to Fraser River."

From the Journals and Itinerary, we find that he estimated the distance and bearings of certain peaks from Jasper House as follows:

Roche Miette, distant about 4 miles, bearing N. 30° E. mag.

Roche Ronde, distant about 7 miles, bearing N. 40°W. mag.

Pyramid Mountain, distant about 14 miles, bearing S. 2°W. mag.

Roche Jacques, distant about 5 miles, bearing S. 30°E. mag.

Roche de Suette (so spelled in the Journal, p. 129; on p. 125 it is "de Smelt," but "Rochêt a de Smet" in the Itinerary) is stated to be distant about 6 miles, on a bearing S. 55°W.

These bearings and distances demonstrate the identity of the peaks shown on Mr. McEvoy's Yellowhead Pass map.

In explanation of the form "Suette," "de Smelt" and other errors in the Palliser Journals and maps, I may say that in the winter of 1883-84, Dr. G. M. Dawson wrote Dr. Hector. In his reply Hector said that, as he received his appointment of Director of the Geological Survey of New Zealand, shortly after his return to England and, as the reports and maps were printed without submitting a proof to him, there were numerous clerical and typographical errors in them.

The information respecting names in this area, except those given by Milton and Cheadle, may be summed up as follows:

(1) "Suette" of the Palliser and McEvoy maps should be "De Smet." In the opinion of Messrs. James McEvoy, A. O. Wheeler, R. C. W. Lett and W. F. Ferrier, the words "the highest mountain, a large rock jutting out in the form of a sugar loaf" demonstrates that the Indians applied the name to Roche Miette.

Major P. A. Moore, however, in a letter dated November 11th, says:

"The origin of the name 'Miette' seems to be lost or at least greatly involved in misty legends, more or less

new, none of which seem to be based on authentic facts. The quotation you give is from the letters of Father Pierre Jean de Smet, S.J. He evidently leaves Jasper House on April 25th, 1846, the ceremony of naming the mountain occurring some days before, as he says: "As the day *approached* at which I was to leave my new children in Christ." This fixes the date beyond doubt when the mountain spoken of received *his* name. Now we will look up what is said about the Roche Miette by other writers.

"*Gabriel Franchère*, passing down the Athabasca, writes as follows in his journal (orig. ed. 1820), under the date of May 18th, 1814: 'Du lac, la Rocher à Miette . . . qui est très elevé, représente le portail d'un église, vu de côté.' In his English translation (1854), la Rocher à Miette is translated 'Millet's Rock.'

"*Ross Cox*, travelling through this country during June, 1817, speaks of it as 'Le Rocher de Miette.'

"Both these writers place and describe the 'Miette Rock' accurately and beyond any doubt of recognition, and thus we learn that this mountain was called 'Miette' at least thirty-two years before de Smet describes the ceremony of naming *a* mountain after him. He speaks of it as 'more than 14,000 feet high and covered with perpetual snow.' There is no mountain thereabouts of that height, but, of course, the early travellers were apt to overestimate heights. Again, 'Miette Rock' does not have perpetual snow upon it, but is a very bare and barren rock, although it probably was covered with snow when de Smet went through in April, but not enough to deceive any one into calling it 'perpetual.' On the other hand it is hard to get away from his description of it as being in the form of a sugar loaf, were it not for the fact that opposite 'Miette Rock' on the left or west side of the river there is a high range, round in formation, usually with snow upon it, and visible from the old Jasper House site. This is marked on one map (Collie's or Coleman's,

I think, although I haven't them here) as Roche de Smet. This, I think, to be the rock of which Father de Smet speaks. I have located the site of the old Jasper House several years ago, at which there are traces of old ruins and about thirty graves of varied ages, the spot agreeing in every way with the description of early writers.

"The name '*Miette*' must have been given with some definite object, as the River Miette bears it also. Some amateur philologists say it comes from the French word miette—a crumb—therefore '*Crumbling Rock*'—a most ingenious and naive explanation, but hardly applicable to the river of the same name thirty miles away and on the opposite side of the Athabasca.

"Personally, I am at sea, but strongly incline to the belief that it is derived from the Cree word, My-a-tick, mountain sheep, which the early French-Canadian voyageurs corrupted into Myatte and so on to its present form. This would be no more a remarkable corruption than to call it *Millets'* rock, or the various corruptions of Saskatchewan, which is itself a corruption of *Kisiskatchwan*—(Cree) *swift flowing.* Of course, if My-a-tick is taken as a derivation, Miette should be pronounced with a long *i*, as it *is* pronounced by many. This theory works out well from the fact that there always were and still are lots of mountain sheep both on 'Roche Miette' and round the River Miette.

"It is perfectly possible that when this ceremony took place, which de Smet described, the 'Roche Miette' was RE-named after him by those who did it, but I don't think so, as the rock seems to have been too well known as a land-mark to have that the case.

"There are many other explanations of the name, but I fear that I have been too long already, but there are so many pseudo explorers in that part of the country of late who are re-naming mountains, rivers, etc., and discovering places (in the wrong place), that Franchère,

Thompson, Cox, Henry and many others trapped over one hundred years ago, that I cannot help giving vent to my feelings, especially as it is my hobby and we have here the first editions of all the early explorers.

"I feel that you will do an immense amount of good and will straighten out many wrinkles by carrying out the work you are in, for the names of many places were given by men who could not outfit at Jasper for a week's trip and spend their time twisting up the topography of a district. They will be desirous of changing the names of Mackenzie or Fraser Rivers next!"

Personally, I am of opinion that the weight of evidence is on the side of Messrs McEvoy *et al* and that Miette was re-named. On the other hand, the name De Smet was, in Hector's time, definitely applied to the peak southwest of Jasper House.

Major Moore refers to the peak on the west side of the river on Collie's or Coleman's map being marked "Roche de Smet." Dr. Coleman's map, however, is only a reproduction of Collie's, and neither extend beyond the junction of Whirlpool and Athabaska Rivers.

Respecting the origin of "Miette," I have cited Hector's statement. The further fact that he also refers several times to "Miette's House" — his designation for Henry House—indicates that Miette occupied the old Henry House, probably as a trader for the Hudson's Bay Co.

Mr. Wheeler, in his letter of November 5th, 1913, says: "Roche Suette is a serrated ridge several miles in length, and I do not think that under any circumstances it could look like a sugar loaf." This seems conclusive.

When it is borne in mind that Jasper House was abandoned and re-occupied several times, it is not surprising that there has been resultant confusion. It is only surprising that there has not been more.

(2) Milton and Cheadle were evidently misinformed and misidentified Pyramid as Priest (De Smet) Mountain.

(3) The range between Fiddle and Drystone Creeks, which is un-named on the McEvoy map, is Hector's "Fiddle Mountains."

(4) The northerly peak of the range, un-named on McEvoy's map, and lying between Stony River and Moose Creek, is Hector's "Roche Ronde," and the higher, lying to the southwest of Ronde, is his "Roche Joe."

(5) "Stony" River should either be "Stoney," after the Indian tribe, or "Assiniboine."*

(6) The first Jasper House was on Lac à Brulé, but, between 1817 and 1827, it was removed to the upper lake.

(7) The present Lac à Brulé was known as Jasper Lake, during the period that Jasper House was maintained on its shores, and for some time thereafter. Eventually, however, the name was transferred to the Upper Lake.

(8) Hardisty Creek was named after a chief factor of the Hudson's Bay Co.

(9) Fiddle Creek and Mountains probably commemorate an incident connected with a violin.

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*Mr. A. H. Whitcher, the Secretary of the Geographic Board, of Canada, writes me, under date March 10th, 1913, as follows:

"These Indians were originally from the south and belonged to the Sioux. The Crees called them 'Assin Bwan' (Stony Sioux), hence the name of the river (Assiniboine) on the banks of which they camped. The original name of the river, on an old map, is 'Stone Indian' river, so named from the way in which they heated water to cook with. Stones were made very hot and put into vessels made of the clay on the banks of the river. I have seen some specimens which were dug up there.

"The treaty with those near Calgary gives the name 'Stony'." —Editor.

(10) Jack Creek is probably a translation of Roche Jacques, the peak two miles northeast of it.

(11) Corral Creek, probably after a horse corral on its banks.

(12) Maligne River and Mountains. This name was originally applied to the river, and indicates the difficulties experienced in travelling up its valley.

(13) Mount Geikie was named by McEvoy after the famous geologist, Sir Archibald Geikie, Director-General, Geological Survey of Great Britain, 1882-1901.

(14) Caledonia (Caledonian) valley was so called because it was traversed by the trail to New Caledonia, the Hudson's Bay Co.'s designation of the portion of British Columbia between 51° 30′ and 57°, and between the summit of the Rockies and of the Coast Range approximately.

(15) Colin Range was named by Hector, but the derivation is unknown.

(16) Dominion Prairie was probably named by Canadian Pacific engineers. The derivation is obvious.

(17) Mt. Moberly; named by Hector after Moberly, who, at that date, was in charge of Jasper House for the H.B.Co.

(18) Mt. Hardisty; after Chief Factor Hardisty, of the Hudson's Bay Co., who, in Hector's time, was in charge of the Edmonton district.

(19) Mt. Tekarra; after an Iroquois hunter, one of Hector's party during his trip to the Upper Athabaska.

(20) Mt. Christie; after a chief factor of the Hudson's Bay Co.

(21) Mts. Le Duc and Kerkeslin were named by Hector, and the bearings in the itinerary identify them, but the names have not, as yet, appeared on any map.

(22) Buffalo Prairie or des Vaches; so called because the buffalo occasionally penetrated the mountains to this point and had been killed there.

(23) Selwyn Range; after the late Dr. A. R. C. Selwyn, Director of the Geological Survey of Canada, 1869-95.

(24) Grand Fork is a translation of the voyageur name Grande Fourche, and indicates that this is the larger branch.

(25) Canoe River. David Thompson wintered at the mouth of this river, January 22nd to April 17th, 1811. On the latter date he started up the Columbia. Canoe River and Boat Encampment commemorate the construction of his canoe and his winter camp.

(26) Mount Thompson and Thompson River; after the famous geographer, David Thompson, who, for many years, made surveys of western Canada for the Hudson's Bay and North West Companies.

(27) Tête Jaune Cache is named after a yellow-haired Indian (or half-breed) who, before crossing the mountains by the present Yellowhead Pass, "cached" his canoe, etc., at this point.

(28) McLennan River; after an engineer on one of the Canadian Pacific surveys in the "seventies."

(29) Mica Mountain; after a mica mine on it.

Respecting the origin of the name Mt. Robson, I note that Mr. Wheeler says that "it must have been given before 1863." As there is no known record or reference to it antedating the publication of Milton and Cheadle's book in 1863, I conclude that it was *not* given prior to that date and also that it was given by them.

On their map they indicate near the summit of Yellowhead Pass:

(1) Mount Bingley; after a town in Yorkshire; said to be Cheadle's home town.

(2) Mount Fitzwilliam; after Milton's family name.

(3) Rockingham Falls. The third Earl Fitzwilliam married Lady Anne Watson-Wentworth, eldest daughter of Charles Watson-Wentworth, second Marquess of Rockingham, Earl of Malton, etc., who was Prime Minister, 1765-66 and in 1782.

(4) Wentworth River; after the family name Wentworth-Fitzwilliam. On the death of his uncle, the second Marquess of Rockingham, the fourth Earl Fitzwilliam succeeded to the vast estates of the Wentworth family in Yorkshire and, by royal license, took the name of "Wentworth" before that of "Fitzwilliam." The family thus acquired the family seat, Wentworth House.

(5) Albreda Lake and River; probably after Milton's aunt, Lady Albreda Elizabeth Wentworth-Fitzwilliam, youngest daughter of the fifth Earl Fitzwilliam. In addition, Milton's ancestor, Sir William Fitzwilliam (d. 1184), married Albreda, daughter of Robert de Lisoures.

(6) Mount Milton; after William, Viscount Milton (1839-77), eldest son of the sixth Earl Fitzwilliam.

(7) Mount Cheadle; after Dr. Cheadle, tutor to Milton and his fellow traveller.

(8) Elsecar River; after a Yorkshire village.

(9) Malton Range; after a Yorkshire village. From 1837-41 and 1846-47, Milton's father was M.P. for Malton, and from 1852-85, Milton's uncle, Lord Charles William Wentworth-Fitzwilliam, represented this constituency. One of Earl Fitzwilliam's seats, "The Lodge," is situated in Malton.

(10) Shillelagh River; after Shillelagh, one of Earl Fitzwilliam's seats in Wicklow co., Ireland.

(11) Mt. St. Anne. Probably after Milton's aunt, Lady Anne Wentworth-Fitzwilliam (1838-79), who married Sir James J. R. Mackenzie.

(12) Mahomet Bridge. The authors say that "the path was so narrow and dangerous, that we gave it the name of Mahomet's bridge."

(13) Alexandra River. As the then Prince of Wales married March 10th, 1863, Alexandra, eldest daughter of King Christian IX of Denmark, the derivation is obvious.

The only name given by Milton and Cheadle for which I am unable even to suggest a definite derivation is the remaining one, namely, Mount Robson. On the other hand, the evidence is overwhelmingly in favour of the theory that the peak was named by them. Of the fourteen names in this area, it has been practically demonstrated that thirteen were given by them. So far as any reference in the text is concerned, five—Bingley, Fitzwilliam, Rockingham, Elsecar and St. Anne—are stated to have been given by them, but no information respecting their derivation has been vouchsafed. The derivations of three —Mahomet, Milton and Cheadle—are given, but the last two named are, in any event, obvious. Three—Alexandra, Wentworth and Shellelagh—are not mentioned at all. The remainder, three in number—Albreda, Malton and Robson — are mentioned casually and without any reference to their naming or to their origin.

On November 28th, 1864, Viscount Milton read before the Royal Geographical Society, a paper on his trip across the Rockies. In it he said:

"This grand fork of the Fraser is at the foot of a very high mountain, which has received the name of 'Robson's Peak,' and is the original Tête Jaune's Cache. It was the highest peak they had hitherto seen. The place at present called Tête Jaune's Cache they did not reach until three days' afterwards."

Bearing in mind that the whole paper is in the third person, the foregoing is practicaly a statement that Milton and Cheadle named the peak.

Again, references in the text to "Roche Miette" and "Priest's Rock," demonstrate that they had knowledge of these peaks and of their situation, but neither these nor any other names given by other travellers are indicated near this portion of their route.

Being convinced that Robson Peak was named by Milton or Cheadle, I communicated with his son, the present Earl Fitzwilliam, who replied that he was unable to suggest any derivation. Dr. Cheadle's recent death debars investigation in that quarter, but I hope to get in touch with some of his relations.

Respecting Mr. Moberly's theory, it is unacceptable if only for the fact that, as the Yellowhead Pass was not discovered till 1826, it could hardly have been a rendezous of the North Company "years before" the union in 1821.

When all the evidence points in one direction only, namely, Milton and Cheadle, it is a mystery to me why practically every one else seems determined to accredit the naming to the Hudson's Bay Company, particularly when absolutely no evidence indicating such naming, other than pure assumption, has yet been adduced.

Though not strictly germane to the subject, a letter recently received from one of our foresters may be of interest. In a report dated October 31st, 1913, Mr. J. C. Blumer mentioned that he had met "Paul Laronde, brother of the Laronde who was chief guide for Milton and Cheadle," and that Laronde had "pointed out the exact site of the explorers' camp of 1863."

Also that he had met James Dreaver, who "took Capt. Palliser from Fort Carlton to Fort Ellice" and "Bob Isbister, who took Capt. Butler's dog train to Cumberland House." The last named is probably the Isbister who accompanied Cheadle from Carlton to Belle Prairie in January, 1863.

In a later letter Mr. Blumer says:

"Your letter of 6th inst. was received, and I am glad to note that you are interested in the references to persons mentioned. Having read Milton and Cheadle's account, I was much interested in finding their old camp and what they called "La Belle Prairie." While in that country on my regular work I made a detour of a few miles to find the exact place, of which I failed, but the true location was later pointed out by Paul Laronde. This man, now over seventy, but well preserved (as also is James Dreaver, now eighty-two), maintains that the date of the journey was 1861 instead of 1863,* as given in the account, as it was in that year that his brother, in making the round trip from camp to Winnipeg, stopped with him on Lake Manitoba, where he then lived. The guide's daughter, who speaks good English, is now living with her uncle at Boutin, close to La Belle Prairie. Dreaver related to me that he received an enquiry from the relatives of Milton in the Old Country regarding any heirs of the latter who might live in this country, entitled to a legacy. He reported that Milton had an Indian wife while he was in the country but left no heirs. The wife died some years ago.

"I shall be glad to make another trip over there, after the present work is off my hands, to obtain what information I can regarding the early travellers."

NOTE—In their book, "The Northwest Passage by Land," Milton and Cheadle make one reference only to Mt. Robson (p. 257). It consists of fourteen lines, and reads as follows: "On every side the snowy heads of mighty hills crowded round, whilst, immediately behind us, a giant among giants and immeasurably supreme rose Robson's peak . . . ." The rest of the reference is a description of the mountain as it appeared when they saw it. Mt. Robson is the highest peak of the Canadian Rockies and one of the most spectacular. Surely, had they named so striking a peak, they would have said something to that effect; moreover, their use of the possessive case, "Robson's peak" points to previous ownership.

*Milton and Cheadle wintered at Belle Prairie, 1862-63.

The Hudson's Bay Co.'s Chief Factor, Henry J. Moberly, states in a letter to the writer of this note, quoted elsewhere in this Journal, that he had always heard that the peak was named after a foreman, one Robson, who was in charge of the company's hunting parties in the locality. If Milton and Cheadle first named it, whom did they name it for? A number of names, as for instance, "Tête Jaune Cache," were in use before the advent of Milton and Cheadle; then why not "Robson"?—Editor.

ROCKY MOUNTAIN SPIDERS

By J. H. Emerton

The 1st of August, 1914, I joined the Alpine Club party at the camp in the Upper Yoho Valley, and spent the following week looking for spiders about the valley and up the moraines as far as the snow. On the way down I stopped a day at the C.P.R. camp in the lower part of the valley where larger trees and moister ground gave better opportunities for forest species, and went on to Laggan and Banff. From Banff I went north to Edmonton and into the mountains again at Jasper and on the way eastward stopped at Athabaska Landing and Prince Albert.

The distribution of spiders in the Rocky Mountains is about as follows: Above the trees and up to the snow a large black spider, *Lycosa fumosa*, Emerton Trans. Conn. Acad., 1894, is common among the loose stones and was brought into camp from several different directions. It is also found at Laggan and Banff above the trees. At a lower level in the mountain valleys one of the round web spiders, *Epeira aculeata*, Em., Bull, U.S. Geolog. Survey, 1877, has been found at Laggan near the railroad and on the flats at Jasper. This species is found as far south as Colorado, but, like *Lycosa fumosa*, only in the Rocky Mountains. Most of the spiders of the Canadian Rocky Mountains have, however, a wide distribution and occur on the mountains of Vermont and New Hampshire and down to the coast of Maine and Labrador.

On the stone-slides above the trees there lives an alpine spider, *Epeira carbonaria*, that makes large round webs between the stones. It was taken this summer, as it was in 1905, on the lowest stone-slide of Mt. St. Piran and on a similar slide on Goat Mountain at Jasper. This

species extends south to Colorado and eastward to the White Mountains of New Hampshire, the coast of Labrador and the Alps in Europe. Just above the trees is a conspicuous ground spider, *Lycosa albohastata*, with a bright white stripe on the thorax and a spear-shaped spot in the middle of the back. This has been found on Sulphur Mountain, and was brought into camp this summer from President Mountain at a height of 8,000 feet. It lives in large numbers on the upper part of Mt. Washington, N.H., and on the eastern coast as far north as Battle Harbour, Labrador, and south to one of the islands in Casco Bay, Maine. Two other species of Lycosa, *Lycosa beanii* and *Lycosa quinaria*, found in the Rocky Mountains by Bean and Tyrrell, have since occurred in Maine. The smaller Lycosidae, *Pardosa groenlandica*, *glacialis*, *uncata* and *lutcola* occur in the Rocky Mountains from Colorado to Canada, in the mountains of New England, north to Greenland and Labrador, and south to Maine and Massachusetts, so they may be expected anywhere in northern Canada across the continent.

The forest spiders of the Rocky Mountains also consist largely of species that have a wide distribution eastward. *Lophocarenum alpinum*, a little spider not over a tenth of an inch in length, the males of which have a grotesque swelling on the top of the head, has been found three different times in the sod on the upper part of Mt. Washington, and this summer was found in the moss on the side of Sulphur Mountain, a little below the Alpine Club House. *Theridion sexpunctatum*, a little spider of the forest moss, lives in the Yoho Valley, westward to Vancouver and Sitka and eastward to the White Mountains and Labrador. Several other species have a similar distribution, and will probably be found in cool and moist forests across the continent.

Two tree spiders of the southern border of the spruce forest have a very definite distribution in the eastern part of Canada and New England. Both are found in the

Rocky Mountains, and one is known to live nearly across Canada. One of these, *Linyphia nearctica* (*humilis*), which was first found at Laggan by T. E. Bean, about 1890, lives in the mountains of New Hampshire and Vermont, from a height of 2,500 feet up to the highest trees extending south as far as the top of Greylock in Massachusetts. In the eastern corner of Maine it comes down nearly to sea level and extends north in wooded bogs as far as the Canadian boundary. In 1905 I found it at Lake Louise, but in 1914 was unable to find it again, so that its distribution in the Canadian mountains and eastward remains to be discovered. The other species, *Theridion zelotypum*, lives in eastern Maine in the same trees with *Linyphia nearctica*, but it extends further south along the coast to the islands in Casco Bay. It extends through Maine, except the southwest corner, but not westward into the White Mountains. Its range through eastern Canada has not been traced, but it occurs again at Lake Superior, at Lake of the Woods and at Winnipeg, and this summer I was able to follow it to Prince Albert, Athabaska Landing and Jasper, where it lives along the river in small spruce trees with large cobwebs between the branches. It was not found at Laggan and Banff, nor in the Yoho Valley.

Of the species below the mountain forest, one seems to be related to an eastern species of wide distribution. The common, jumping spider, *Dendryphantes*, of the low trees at Banff, Jasper, and Athabaska Landing, appears to be a large and strongly marked variety of the *D. cavipedes* Peckham, of eastern Canada and Maine, a small and dark variety of which extends south along the eastern coast beyond New York.

The mountain spiders mentioned above are most of them described in a paper on Canadian Spiders by J. H. Emerton in the Transactions of the Connecticut Academy of Arts and Sciences in 1894. A second paper on

Canadian spiders by the same author will be published by the Connecticut Academy next year, containing descriptions of several new species and notes on distribution and variation.

MISCELLANEOUS SECTION

NATIONAL PARKS AS AN ASSET

By the Hon. W. R. Ross

The scenery of the Province is one of the best natural assets of British Columbia, so greatly endowed with potential riches. The Government has not neglected this in the general development of its many and varied resources, and large stretches of country have been reserved as public parks. Conspicuous among these are Strathcona Park on Vancouver Island and Mount Robson Park on the Mainland. They form notable additions to the chain of parks in the Canadian Northwest: Yoho and Glacier in the Railway Belt, Jasper adjoining Mount Robson, Rocky Mountains Park and the Waterton Lakes Park, the three latter being in the neighboring province of Alberta.

When their attractiveness is made known to the many tourists who desire to spend their vacations amidst the great works of Nature, doubtless thousands will visit yearly the mountain districts in which the parks have been set aside as the playgrounds of the people. At the present time a considerable amount of money is expended by those who come to British Columbia to visit the mountain areas, and when better travel facilities—and, consequently, cheaper transport—are available, and hotels, roads, trails and other necessary works are completed, the revenue accruing from this traffic will amount to no small sum.

The desirability of creating a park in the neighborhood of Mt. Robson is evident. Abutting on the western side

of the great Jasper Park in Alberta—a park some 4,000 square miles in extent—lies Mt. Robson Park, a veritable Alpine Wonderland. It is set in a vast and practically unknown section, perhaps the most wild and romantic on the continent. So little was known of it that the surveyors and engineers who did the pioneering and the pathfinding for the Grand Trunk Pacific Railway found undiscovered waterfalls whose height exceeded that of Niagara, found mighty rivers which existing maps showed fifty miles out of place, rivers and lakes full of fish and rugged wilds alive with big game. All is set in an expanse of sublime grandeur.

In such a sanctuary from the work-a-day world is placed Mount Robson Park, a heritage vested in the people of British Columbia, a never ending source of delight, which will draw many thousands, with incalculable advantage to the Province. Nature has there provided attractions as lavishly as she has endowed other portions of British Columbia with varied potentialities.

The area which has been set aside is better adapted to the purposes of a natural park than any other. Its altitude—the lowest part is 3,000 feet above the sea—is such that, while it offers unparalleled attractions as a recreation ground, it to a great extent precludes the region from successful agriculture; and its forests, while protecting the watersheds and, by their greenness, adding to the wondrous panorama that meets the view from any one of the towering peaks, are not of a nature to tempt the logger or miller to the fastnesses where they grow. Yet the forests add much to the desirability of the park, making it compare, in some respects at least, with those widely known playgrounds of Banff and the Yoho which have already attracted thousands and will, doubtless, attract thousands more.

While the Government, without the sacrifice of any farming lands, has set aside this area to remain an

Photo, Byron Harmon

THE EMPEROR FALLS
Mt. Robson Park

untouched national park, it has been careful not to prevent such natural resources as may exist in the district from being uncovered. There is reason to believe that in Mount Robson Park there are good bodies of excellent marble, mica and mineral deposits, and it is proposed to retain power in the Lieutenant-Governor-in-Council to develop and operate the various potentialities known to exist, or which may hereafter be discovered, in the area set aside, under proper conditions framed to suit the circumstances.

Since the creation of Mt. Robson Park there has been much speculation as to the naming of the great peak which dominates the mountains round. The origin of the name is not clear. The popular belief was that this mountain was named after the Hon. John Robson, a former premier of the province who came to it in 1862, and was publisher of the Columbia Newspaper at New Westminster.* The Hon. John Robson died in 1892. The first mention of the mountain occurs in "The Northwest Passage by Land," written by Lord Milton and Dr. Cheadle, and is named "Robson's Peak" on a map published by them in 1865 to accompany the book, which contains a splendid description of their journey through British Columbia in 1863. They state that they camped near the base of Mount Robson.

H. J. Moberly, the well-known Hudson's Bay Company's chief factor, who is among the pioneers of British Columbia, in a letter to Mr. A. O. Wheeler, regarding the name of the mountain says:

"As far as I have always heard the origin of the name given to Mt. Robson was as follows: Years before the Hudson's Bay Co. and the Northwest Company joined (1821), it was the custom for the Northwest Company to outfit a party for a two years' trip, hunting and trading. They went West and North, and even as far as the

*The Hon. John Robson did not become premier until 1889.—Ed.

border of California. One party, some two hundred men, chiefly Iroquois and French Canadians, was under the charge of Peter S. Ogden. When west of the Rockies he scattered his hunters in different parties under the charge of a foreman to hunt for the season. One of his camps, while under the charge of a man named Robson, was somewhere in the vicinity of this mountain, and it was a rallying point where all parties came together for their return East."

Mr. R. B. McMicking, the well-known pioneer of Victoria, was a member of a party which travelled through this section of the country in 1862, but no member of the party could trace the origin of the name.

Two great transcontinental railroad systems traverse Mt. Robson Park, a ıd they, doubtless, will do as much as other railroads have done to develop the tourist traffic in this, the newest link in the chain of British Columbia parks. As the Canadian Pacific Railway has made the name of Banff a household word in the countries of the world, a name dreamed of by those who love the mountains and the great glacial fields, and drawn thousands to where its fine hotel nestles in the shadow of the peaks, as the same company has attracted the throngs which visit the famed Yoho, so the Grand Trunk Pacific and the Canadian Northern will develop traffic to Mt. Robson. Entering British Columbia by the Yellowhead Pass, these railroads run from east to west through the valley of the Upper Fraser and traverse the whole extent of the Park.

Mr. W. W. Foster, M.P.P., who climbed Mt. Robson last summer, in an address before the Natural History Society of Victoria, recently, speaking of the development of travel, said: British Columbia had many natural resources. The Province was rich in minerals, agriculture, timber, etc., but in contemplating these things, the value of the scenic

attraction of her mountains, valleys and rivers was often overlooked. All that was necessary to insure the country an immense income from this source was the improvement of transportation facilities, which was being secured, and advertising. The possibilities would be better understood when it was pointed out that Switzerland, which was not larger than Vancouver Island, realized an income derived from tourists of $150,000,000 per annum. British Columbia was many Switzerlands rolled in one. In France from the same source there was received $500,000,000 each year. New Zealand, being like the Canadian West, comparatively new, made even a better comparison. Here it was found that the importance of the tourist was so well understood that the Government operated what was known as a "Tourist Bureau" and spent a great deal of money in informing the world of the Colony's attractions and of the most convenient ways of seeing them.

British Columbia, having a population of 90,000,000 people to the immediate south, and with the advantage of an imperial connection that could not be over-rated, stood in a much better position than New Zealand.

Commenting in its editorial columns on the remarks made by Mr. Foster, the Victoria "Colonist," referring to the fresh tourist route being opened by the new railroads, said:

"We are reminded by his address of the early opening of what will be a very interesting tourist route, soon to be available. It will utilize three new railways: The Canadian Northern Pacific, the Grand Trunk Pacific and the Pacific Great Eastern. The starting point will be Vancouver, and the journey will end at that city and will be approximately 1,500 miles long. It will be up the Fraser Canyon, up the canyon of the Thompson, up the picturesque North Thompson and then across a low divide to the historic Yellowhead Pass near the majestic

peak of Mt. Robson. Thence it will be down the Fraser and across country to historic Fort George, and southward for a part of the distance by the Fraser Valley, and then, by a detour, through the region made famous by the old Cariboo Road. It will cross the Fraser, and, running through the Lillooet country, reach the Pemberton Meadows and thence extend southward to Howe Sound and along its picturesque shores to North Vancouver, and thence across Burrard Inlet to the place of beginning.

"The traveller will follow the footsteps of the giants of bygone days, Mackenzie and Fraser and Thompson, and many another of the splendid and fearless men who wrested from the mountains and from the wild rivers the secrets they had long hidden. There will be majestic scenery for hundreds upon hundreds of miles, and the whole journey will be through a land rich in human interest. There can be few journeys like this anywhere in the world. It will, of course, be possible to vary it. The traveller may prefer to journey on from Fort George to Prince Rupert, and return home by the land-locked channels along the coast line. He may continue eastward from the Pass to Edmonton, and thence home by way of Calgary and the C.P.R. Later he may go Northward from Fort George to the Peace River, and stand where Mackenzie stood when he wrote his description of the Rocky Mountains, contenting himself with saying that they 'presented an agreeable spectacle.' Later still he may journey as far as the Yukon waters; but of this more and more by and by. All we shall speak of to-day is the new wonderland which the new railways will make accessible."

The modern traveller does not confine himself to one locality. In the itinerary of his journey the chain of national parks will be connected. The newcomers who flock to Banff and the Yoho Park will look toward the coast where lofty Crown Mountain stands sentinel over

Photo, Byron Harmon

MT. ROBSON, TUMBLING GLACIER AND BERG LAKE

Strathcona Park, and having seen its glories, they will journey eastward again over the new railroads to Mount Robson Park to see and admire the beauties of this place which are equal to any the two hemispheres, bounded by the seas, have to offer.

It is a region magnificently set in its majestic grandeur. Mount Robson, itself, towers to 13,068 feet above the sea. Mount Resplendent and many other peaks have altitudes from nine to eleven thousand feet. Lakes, varying in hue, like a chain of jewels, thread its valleys. Forests of fir drape their sides. At every bend fresh beauties are disclosed, beauties the memory of which lingers on through life and stimulates repeated visits not only to Mount Robson Park but also to the whole great chain of natural parks which the British Columbia Government has set aside for all time to be the playground of its people.

"MT. ALEXANDER"*

By S. Prescott Fay

(Read at the Annual Meeting of the American Alpine Club)

In view of the increasing interest from year to year in the higher peaks of the Canadian Rockies, and especially because of the prominence that Mount Robson, the highest of them all, has taken, any new mountains worthy of mention should serve to create a new stimulus for further work and exploration by members of this club. For this reason I have written a short paper which Professor Charles E. Fay has kindly consented to read for me as well as to show a few slides.

In 1912 I found myself in a position to take an extended vacation during the summer and I immediately planned to re-visit the Canadian Rockies. As I had at first intended doing some climbing I consulted Professor Fay as to what accessible regions were left that needed exploration. However, my plans changed and I determined to take a hunting trip north of the Yellowhead Pass. On August 8th I left Hinton, a station on the Grand Trunk Pacific Ry., with Fred Brewster, from whom I obtained the outfit of horses. Our definite plans were to get as far as possible into the country beyond the Smoky River—a tributary of the Peace—and there hunt. The real object of our trip was to determine the species of sheep existing in the mountains between the Athabasca and Peace Rivers. After five weeks of travelling through badly fallen timber, which made our progress slow, we reached the head of Sheep Creek—a stream flowing into the Smoky River. From here we set

*The name "Mt. Alexander" has not been approved by the Geographic Board of Canada and must be considered tentative. In another article in this issue it is referred to as "Mt. Kitchi."—Ed.

out from camp on September 12th with packs for a four days' hunt. From the first mountain we climbed, at an elevation of about 8,000 feet, we had a magnificent view of the ranges about us. About twenty-five miles, possibly thirty, in a direction northwest from us was a vast region of snow and ice that immediately attracted our attention. From the midst of this rose two high mountains, one of which appeared to be of great height. Our enthusiasm and excitement was so intense over the discovery of this giant peak that we got its exact location by the compass so as to be able to locate it again further on when we should move our camp nearer to it. It rose above all the surrounding peaks, presenting a beautiful sight as its ice-covered summit glistened in the clear September sunlight. We had no way of judging its height at this distance—we only knew we had found a giant mountain. But as it turned out, we saw it no more that year, in spite of the fact that we were camped within ten miles of it as we discovered last summer. It snowed and stormed continually for about ten days after we had moved our camp nearer to it. Our supplies were so low that we spent all of the time hunting. It was then the end of September, and we reluctantly started home, where we arrived late in October, having been seriously impeded by two feet of snow.

Although I was back again in the summer of 1913, owing to an operation the previous spring I could not attempt a long trip, so I spent the time in the country between Laggan and Mount Robson, from where I returned the end of November. However, the latter part of June, 1914, saw us under way again with an outfit of twenty horses and food for four months on our way north from Jasper, intending to investigate the mountains as far as the Peace River. This time Mr. C. R. Cross, Jr., a member of the American Alpine Club, accompanied me. Our main object was hunting and collecting for the Biological Survey of the Department of Agriculture at

Washington. However, we had in mind locating the mountain unless it seriously interfered with our work.

On July 13th we caught our first glimpse of the peak from a mountain of about 8,000 feet in height along the Sulphur River. It was a rare opportunity to judge its size, for we saw Mount Robson as well at the same time. The latter, which was south by west (compass direction) from us, was only about thirty miles distant, yet the other mountain was fully sixty-five miles away and northwest by north from us. Even at this great distance, double that to Mt. Robson, our mountain seemed to suffer nothing in comparison with it, which justified our former belief in its great height. These distances are quite accurate as this section had been partially mapped and some of the meridians have been surveyed. We later found the mountain's location is about ten miles west of the intersection of the 54th parallel of latitude with the 120th meridian of longitude. Our enthusiasm was thoroughly aroused by this magnificent view of these two giants glistening in the sunlight, and we regretfully returned to camp, for we knew it would be fully two weeks before we again saw the mountain. The next glimpse we caught of our friend was on July 31st from the trail high above the Muddy Water River. But it was only for an instant, as the trail, descending sharply, hid our mountain behind the nearer ranges.

From here on the scenery becomes very beautiful indeed, but space forbids and I shall not attempt a description. A few days later we were crossing the divide between the two forks of the Porcupine River and as we approached the height of land, there arose before us over the grassy summit the snow crest of the big mountain not fifteen miles away. Luck was with us, for at every possible viewpoint we had clear weather, so these unexpected views were pleasant surprises. We camped a few miles below, and from our teepee the ice cornice of

Photo, S. P. Fay MT. ALEXANDER
Six miles distant

Photo, S. P. Fay THE THREE SISTERS

Photo, S. P. Fay VIEW FROM JARVIS PASS

the summit was just visible above the glacier on Thunder Mountain. Here we climbed up the slopes above camp after caribou, from where we not only had fine views of the mountain, but as well saw Robson about sixty miles away to the south, giving another fine opportunity for comparison, but with the distances reversed from the similar sight on the mountains along the Sulphur River, three weeks previous, where Robson was the nearer of the two. Camp was moved below to the lower of the three lakes, at the head of the north fork of the Porcupine River. This series of lakes is extremely beautiful and, being only a few miles from this high group of mountains, is sure to become a region rivalling that about Mt. Robson and other such places. The lake at the head of the south fork, although not as fine as these others, is certainly worth mentioning, for the first view of it is so unexpected that its beauty strikes one instantly. As we emerge from the timber, suddenly at our feet, perhaps 1,000 feet below, appears a lake of about three miles in length of a most beautiful emerald green in color. Surrounded as it is on three sides by rocky peaks whose lower slopes are heavily timbered with dark green spruce and at one end of which a mass of ice and snow mountains tower, it cannot help appealing to anyone, even though accustomed to beautiful scenery. But the other lakes are grander and wilder, and the mountains, which are higher, rise more abruptly from the shore, making the effect more impressive, especially at twilight when the wind has died down, and the surface of the lake mirrors the surrounding peaks.

From this camp we climbed to a ridge about 7,500 feet high and obtained our nearest view of the mountain, which was not more than six miles away. Unfortunately it was none too clear and the top was covered with clouds. The mountain is in British Columbia, not over fifteen miles from the Alberta boundary, and on the west slope of the Continental Divide, so that its glaciers drain into

the Pacific Ocean. We could distinguish a stream, which may flow into the Big Salmon River, a branch of the Fraser, which seemed to rise among the ice-fields on the northeast side of the mountain. It flowed about its eastern and southern faces and disappeared around the western slope, encircling the mountain for probably 180 degrees; so that, on this side, it is separated from the other mountains by a deep valley, from which the rock cliffs of the outlying spurs rise from 1,000 to 2,000 feet. Whether on the west and north sides it is similarly isolated from the other ranges, or whether it is connected with them, we never found out. This view gave us our best idea of the size and contour of this big mountain mass, whose base is composed of sheer rocky cliffs above which is a large glacier encircling the final peak, which rises above 3,000 feet higher. There was a fine hanging glacier, reminding one of that on Mt. Victoria, as its ice in falling resounded like thunder on the rocks below. A curious feature of the mountain was an extraordinary glacier that seemed to be clinging to the steep face of the peak, though its lower part had fallen away, leaving it apparently unsupported. In spite of the immense pressure there must have been from above, it was still clinging there. The peak itself, from some points, presents a pyramidal shape with very steep arêtes, but from this side its summit is a long, generally level, ice cornice, which looked broken and very steep on the sloping side. It apparently is higher at the northeastern end. No matter from where it is seen it is an impressive mountain, though not as striking as is Mount Robson seen from across Berg Lake.

We had planned to stay another day in order to make a closer inspection of the mountain, but it was rainy and, as we could not afford to waste a day, we packed the horses going down the Porcupine River. Two days later we caught another glimpse of the mountain, and, as seen through a vista of green spruces at its eastern

Photo, S. P. Fay

MT. IDA

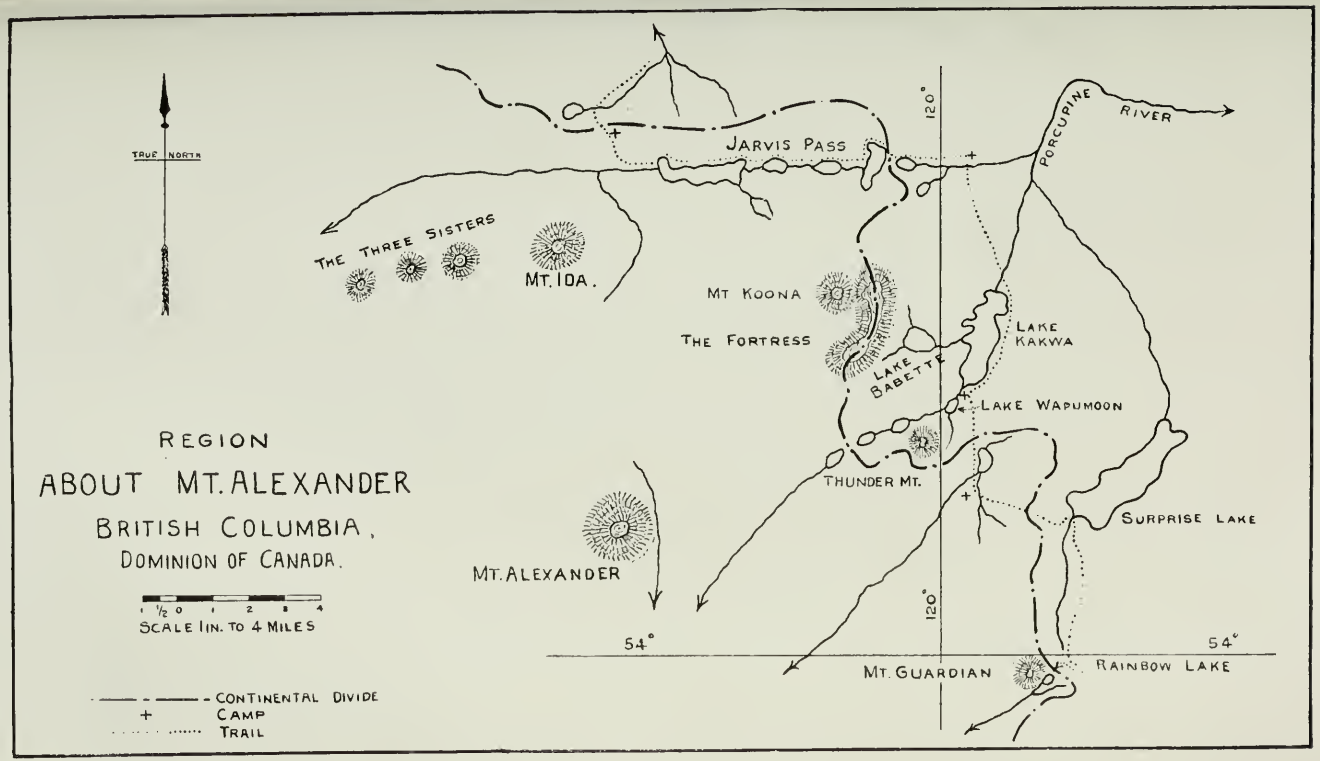
From Little Summit Lake on North side of Jarvis Pass. Mt. Koona and The Fortress on the left.

face glistening in the sun, it was a pretty sight as it towered high up, though it must have been more than fifteen miles away. A nearer view of this face would be extremely impressive. Late that afternoon we emerged from the timber to an open summit, where we intended to camp, and, as we turned about, we saw the most impressive sight of all. There, across a narrow valley, towered a very steep-sided mountain, whose northeastern arête was as sharp a knife edge as one could imagine. It literally dominated the landscape and dwarfed every peak in sight. Our big mountain, as we later discovered, was directly behind it. We estimated its height at over 11,000 feet and although much lower than the big mountain, I believe it was more impressive. That night I saw it by moonlight, and it was a sight which I shall not easily forget.

The next morning was a fine, clear August day (it was the 12th of the month), and we climbed a ridge 2,000 feet above camp, from which we saw one of the most magnificent views I have ever seen in the Canadian Rockies. All the way from the northwest to the south was a region of snow and ice. In the foreground towered our knife-edged peak and beyond it rose the big snow mountain once more. Both will prove extremely difficult to climb as well as dangerous; the big one because of its extremely steep and dangerous ice slopes, and, once on top, the ice cornice will be a serious problem. The other, I think, will be even more difficult because the final summit looks unscalable. It is in the shape of an elongated drum set on end and is perpendicular on all sides for the last two or three hundred feet. The base of this cliff probably can be reached by the southwestern arête. This seems to be connected with the final cliff by a dangerously steep-sided, narrow ice-slope. Once across this, there is still the perpendicular wall of the drum before the actual summit can be reached. It will certainly prove an interesting climb.

Now, as to the height of the big mountain. Our estimate was 12,500 feet, based on our camp elevations as well as the various elevations of the ridges from where we saw it. We had good opportunities to compare it on two occasions with Robson, and so feel conservative in giving it that altitude. The next day we left here, having satisfied ourselves with locating the mountain, which proved as much of a giant as we believed when we first saw it on September 12th, 1912. We regretted not being able to stay longer to explore it, but time was valuable and, as it was, we were four months in reaching Hudson's Hope on the Peace River. Later, during our climbing and hunting we often saw our old friend in the distance always looming up high above everything else. For many weeks it served as a landmark and aided in our map making.

A few words in conclusion. Members of the Alpine Club of Canada seemed to have noticed this mountain during their summer camp of 1913 near Mt. Robson, for the accounts read that "many fine snow mountains appear, one of enormous size, some eighty miles away, which rivals Mt. Robson." Apparently this is the mountain they refer to, for the distance they estimated is almost exactly correct. Later on in our trip I heard of trappers who spoke of an enormous mountain at the head of the north fork of the Fraser River. Apparently it was known to the Indians too, but the only other white man whom I have been able to find who has seen it at close range was a Mr. Jones (whose initials I forget), whom I saw in Edmonton on my return. He had spent four years surveying for a suitable pass for the Grand Trunk Ry., and about ten years ago first saw the mountain. When I asked his opinion as to its height, he said that as he was looking for low passes and not high mountains he did not measure it accurately, but he knew it was at least 12,000 feet, and that was the figure we found on his map. Previous to his trip a man named Jarvis had crossed from


TRUE NORTH
JARVIS PASS
PORCUPINE RIVER
120°
THE THREE SISTERS
MT. IDA.
MT KOONA
THE FORTRESS
LAKE BABETTE
LAKE KAKWA
LAKE WAPUMOON
THUNDER MT.
SURPRISE LAKE
MT. ALEXANDER
54°
MT. GUARDIAN
RAINBOW LAKE
REGION
ABOUT MT. ALEXANDER
BRITISH COLUMBIA,
DOMINION OF CANADA.
SCALE 1 IN. TO 4 MILES
CONTINENTAL DIVIDE
CAMP
TRAIL

the Fraser waters to the Porcupine through this valley up which we had come, and to the knife-like mountain he had given the name of "Mount Ida."

To return to the big mountain once more. The most likely route to the upper glacier will probably be from the northeast and the route up the final peak to the cornice on the summit will very likely lie by the northeastern or the southwestern arête. I regret that my information is not more detailed. Unfortunately I will be unable to take the time to again make the trip, but I hope that someone will be sufficiently interested to make a serious attempt on the mountain—in fact, on both of them. By this I do not mean to imply these are the only two mountains of interest, for the region is one of high peaks and there should be a number well over 10,000 feet. The region is a worthy rival to that about Mt. Robson, both from a scenic and from a climber's standpoint. The only drawback is its inaccessibility, for it takes over two weeks of steady travelling from the Grand Trunk Ry. to reach it. The only practical route is the one we used, as in that way the outfit can be taken the whole way and camp made at the base of the big mountain amid the most beautiful of surroundings. In absence of any name for this new high mountain we called it "Mount Alexander," after that most intrepid explorer, Alexander Mackenzie.

WINTER CONDITIONS NORTH AND WEST OF MT. ROBSON

By Donald Phillips

Comparatively few people have, as yet, visited the wonderful display of mountains, glaciers and valleys in the Mount Robson region. Until the summer of 1913, when the Alpine Club of Canada held its Camp in Robson Pass, you could count on your fingers the number of parties which had visited the district. But Robson and its immediate surroundings are only a part of a vast region of mountains, glaciers, snowfields, valleys and rivers. To the north and west of Robson lies mile upon mile of mountain grandeur upon which no white man so far has set his foot; and even the red man has not penetrated many of the higher valleys, where it is impossible to go with horses.

During the summer of 1911, Dr. Norman Collie and A. L. Mumm, with Fred. Stephens and John Yates as guides and packers, went in by way of the Stony River to the Big Smoky River. They discovered the Bess Pass and also another pass a few miles beyond which led to an unknown river; whether it went to the Fraser or back to the Smoky they were unable to tell. The river that flowed westward from Bess Pass they knew not the name of, but decided it was Fraser waters. In December, 1912, the writer proved it to be the Beaver River by following it from its source to the Fraser River, into which it empties about forty miles below Tête Jaune Cache. The other river, which Collie and Mumm called the "mysterious" river, I proved to be the Jackpine River, a branch of the Big Smoky. A sketch map accompanies this article, which, although far from correct, will give my readers a general idea of the lay of the country.

Photo, Julia Wilcox

DONALD PHILLIPS AND HIS PACK PONIES

During the winter of 1911-1912, Conrad Kain, well known to members of the Alpine Club, and the writer spent several months on the headwaters of the Smoky, Moose and Beaver Rivers on a trapping expedition and discovered, as we supposed, Wolverine and Bess Passes, but found out later that Collie and Mumm had been ahead of us a few months. Conrad and I worked down the Smoky as far as Short River, which we then called Chown Creek, as the big, snow-covered peak back of Mt. Bess, which somehow got called by the name of Chown, stands at the head of the valley, where is located the grandest and most beautiful glacier in the whole region.

Conrad also explored Twin Tree Lake, which he estimated at about eight miles in length. I have since, however, proved to my own satisfaction that the lake is not more than six miles at the outside, for in November, 1913, before the lake was frozen over, I "highbanked" it around the shores from the head of the lake to the outlet in one hour and fifty-five minutes, and that with a pack on my back.

During the fall of 1912, I took a hunting party in north of Robson, going in via Moose Pass. We crossed Bess Pass and up over the steep shoulder of Mt. Bess to the pass leading to the head of the "mysterious" river, which I was certain must be the Jackpine, as we proved it to be a few days later when we camped near the mouth of the middle fork and I climbed a mountain and could look down the valley to where it joined the Big Smoky. On a pass a few miles west of there I found what I took to be one of W. R. Jones' camping places when he was exploring that country for a pass for the G.T.P.Ry., and later on we called that little pass, between the middle fork and the west branch of the Jackpine, "Jones Pass." From a peak on the east side of the pass I got a grand view of the surrounding country. To the southwest was a beautiful stretch of meadows and parks along the pass

at the head of the middle fork, and just beyond, nestling into the edge of a forest of great spruce and balsam was a lake as clear as crystal. We afterwards named it "Meadow Lake" and the pass "Meadow Lake Pass." A mile beyond the lake is the valley of the west branch of the Beaver, which we later named "Snow River" on account of the heavy snow-fall down there.

Everywhere, as far as the eye could see, were alplands above tree-line, and it looked as if one could travel almost anywhere, but later exploration proved that the valleys on the B.C. side of the Divide were very steep, deep and rough and very much belied the appearance above tree-line, as you were liable to find many jumping-off places. From this vantage point I got a fine view of that big, unknown peak, about thirty miles to the northwest, at what I have been told by trappers, who claim to have been up there, is the forks of the Fraser-Smoky. So on my map I have named the stream that flows away from the pass at the head of the west branch of the Jackpine the east branch of the Fraser-Smoky.

During the winter of 1913 we had a trap-line down that stream to within a few miles of the big mountain, but were never lucky enough to see it clear of clouds. Standing on that peak that day I was closer to the unknown mountain than to Robson, which was also in plain view, and it appeared to be every bit as large as Robson itself, as it also does from Jackpine Pass, from which both mountains can be plainly seen.

Future explorers will describe the beauties and wonders of this region more ably than I, so I will pass on to the real object of this article, namely: To give you an idea of the winter conditions that exist along the different valleys, which are so extremely varied as to seem almost incredible. We will take an imaginary trip, starting from Robson Pass, say about the month of March, when the snow will be at its deepest.

At Robson Pass we will find about three or four feet of hard drifted snow out in the open, and in the shelter of the timber along Lake Adolphus there will be about five feet. This snow from its own weight is quite solid and will be good snowshoeing. By the time we reach Yates Torrent and Calumet Creek there will not be more than three feet of snow, but if you take a little trip over the Moose Pass you will find five feet again before you get to timber-line; and on the other side of Moose Pass there will be six or seven feet of snow in the timber. If you try to follow the summer pack-trail you will not only find the blazes on the trees snowed under, but also the highest scratches and broken limbs where the packs on the pack ponies have bumped against them. All signs are covered up.

Continuing on down the Smoky the snow keeps getting less until, by the time we reach Wolverine Creek, there is only about two feet. But up Wolverine Creek the snow steadily gains again until there is about five feet by the time we reach the summit. This Wolverine Summit is a couple of miles of flat marsh and lakes, wind swept and drifted hard. It does not present the dreary aspect of Robson or Moose Pass during the winter. Wolverine Pass is always beautiful, summer or winter.

At the head of the valley stands a big pyramid-shaped mountain, easily 10,000 feet in altitude, with a large glacier on the right, and on the left a beautiful icefall. Still further to the left is Mt. Gendarme, and a little back and between the two are three or four smaller peaks. There is not a burned tree in Wolverine Valley which helps to make it one of the most beautiful valleys that I have ever seen. Both the Beaver and Wolverine Creeks head in this valley, one branch of the former coming down from a glacier on the west side. A mile below, where it joins the main stream, the Beaver starts on its turbulent race of seven or eight miles down a narrow, rough valley until joined by the smaller streams from

Bess and Jackpine Passes. From there to within twenty miles of the Fraser the waters flow over a gravelly bottom between heavily timbered banks, with the exception of about four or five miles in one place, where there are some rapids but no falls. The last twenty miles are all canyons and rough water, where one has to take to the hills. Somewhere in the canyon about ten miles from the Fraser the west branch joins the main stream.

All west from Wolverine Pass and in the bend of the Beaver is a vast region of snow and ice and large mountains. I have had many glimpses into these glaciers and have examined them from Cariboo, Bess and Jackpine Passes. The people who accompanied me to the summit of "Mt. Pamm" will remember that group of mountains and ice lying along the south sides of the Beaver Valley. With the exception of Cariboo Creek none of the waters come to the Beaver. Small River and Horse Creek must drain that section.

But to continue our winter trip, we leave Wolverine Valley and start down the turbulent Beaver River. Hardly half a mile have we gone when we come to a great snow-slide which has completely filled the little meadow, half a mile long and two hundred yards wide. Slides coming down here all the winter from both sides of the valley have deposited twenty to thirty feet of snow, and for the next five miles we shall be constantly crossing big slides, as the sides of the mountains are very steep. Between the slides we find the river covered with snow, so that most of the time we can travel right over the water on snow-bridges that are quite safe, but it takes one some time to get used to them.

In all the sheltered places the trees are loaded down with snow. If you had been here during the summer you would now be likely to enquire as to what had become of all those troublesome alders and willows that used to trip you up so often. They are all there yet, but for once you

Photo, Donald Phillips

THE SNOW-FILLED BEAVER RIVER
AND MT. BESS

Photo, Donald Phillips

WHERE THE TREES LOOK LIKE
WHITE COLUMNS

are able to travel over the top of them, for the first heavy snows bend them down to the ground, and there they stay until summer comes again. As we get down to the main valley you wonder how so much snow can stay on the trees, for nearly every tree looks like a white column, and you mentally warn yourself, "Don't bump the trees." The explanation of so much snow hanging on the trees is that here the snow-fall is not only heavy and almost constant, but also is often wet and frequently thaws a little so that the snow gets frozen to the limbs. The great loads that cling to the trees are not soft, loose snow that a slight breeze would dislodge, but a hard crusted mass that only a heavy wind will shake off. Then the wary trapper instead of hiking for the tall timber looks for an open place until things quieten down. I have seen those huge pieces of frozen snow, weighing upwards of a hundred pounds and more, come crashing down from the top of a hundred-foot spruce and go right through a hard-frozen snowshoe trail. The trapper would sure be out of luck who happened to have one of them fall on his head.

From here we will start early in the morning and head up a very steep snow-slide towards Jackpine Pass. Up the slide we must go as the snow is hard and solid, and early in the morning there will be no slides if it is not storming. There is a strip of timber between the slide and the creek which comes down from the pass, but the snow will be too loose in the timber to go up such a steep slope. It is about five miles to the pass and you will be about all in when you get there. Above tree-line the snow will be drifted until you cross the summit of Jackpine Pass, but just as likely as not when you start down the other side you will strike very soft, dry snow which gets deeper as you go down into the valley of the Jackpine. Here, although the snow may be eight or ten feet deep, there is very little on the trees, as it is always dry, light snow that soon falls off from its own weight or

the slightest breeze dislodges it. The valley, stretching away for ten miles before us, looks as if it held a long lake covered with a white mantle, but it is only marshy flats, and the deep snow covers all the brush and smaller trees. On both sides for miles there are large snow-slides piled up in great ridges where they run out on the edge of the river flats. About ten miles down the river we notice a change in the colour of the evergreens, from the the dark green of the spruce to the light yellowish green of the jackpine, and there is no snow on the trees at all.

As we pass the rapids, emerge from the heavy timber and come in sight of the south fork we seem to have stepped into an entirely different country; the snow is only a couple of feet deep, all the brush is standing up out of the snow, and along the banks of the river are bare spots with the withered grass showing in places. Here the "Chinooks" strike the Jackpine coming down its south fork, and the snow keeps getting less as we go down stream. At the mouth of the middle fork there is about eighteen inches, but if we turn and go four miles up the middle fork we will again find six feet of snow. Going over Meadow Lake Pass and down on Snow River you will find ten feet. I have seen it snowing there on one side of camp and on the other the stars would be shining. Again, I have broken trail and next day could see no sign of a trail on the return trip. My trapping partner and I built a "lean-to" camp about the 1st of December, 1912, and there was then about three feet of snow. Ten days later there was eighteen inches more. I returned again the middle of February, the camp was completely covered and I shovelled away seven feet of solid packed snow from in front of the cabin, and it snowed a good deal after that.

Over Jones Pass the snow is also deep, and there is about six to eight feet along the head of the west branch of the Jackpine. Down around the big unknown mountain the snow must be very deep, for it was

always stormy over that way. Going back down the west branch the snow rapidly grows less until by the time we again reach the main Jackpine there is only a foot or so. Up Ptarmigan Creek there is not over three feet of snow, and the steep, timbered side-hills along Ptarmigan Lake are the home of many cariboo. At the head of the creek is the end of the big range to which Mts. Bess and Chown belong. There is one big mountain and several small glaciers with one of the largest moraines that I have ever seen. The valley ends in a large, wind-swept basin with small glaciers clinging along the edges.

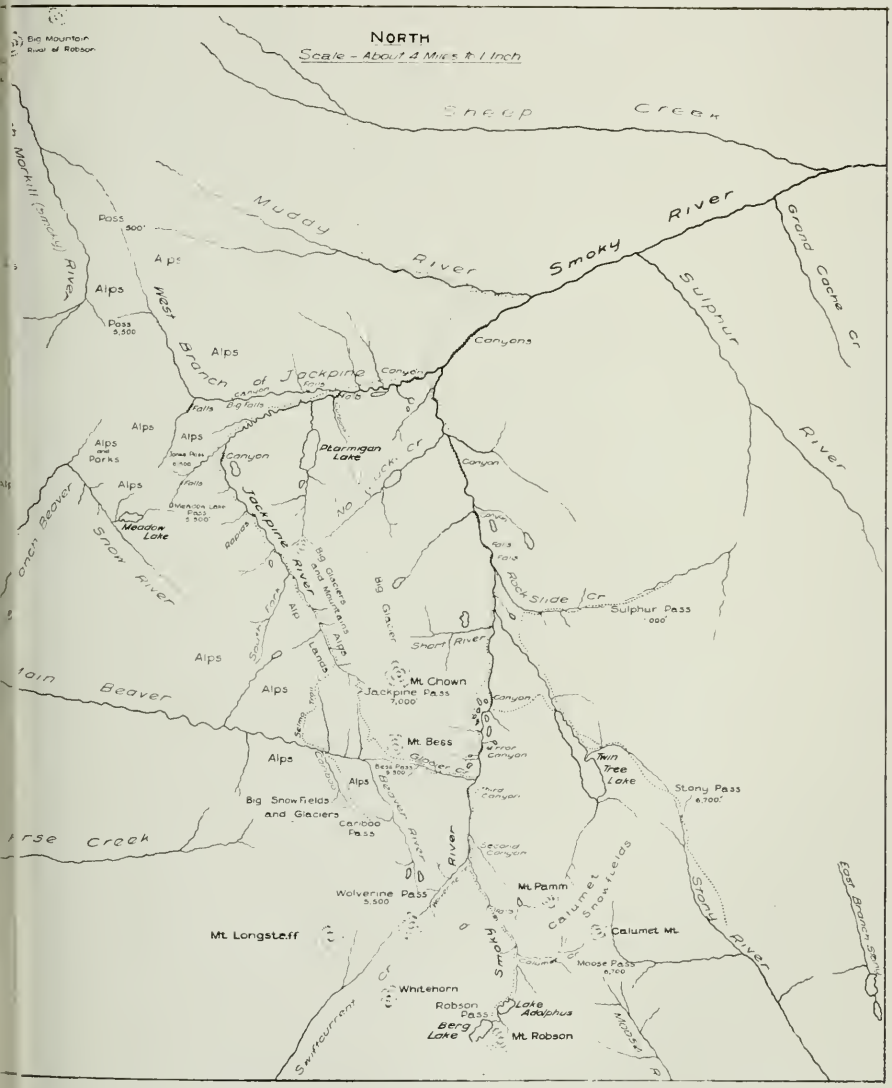
On down the Jackpine the snow gets less and less until by the time we reach the Smoky all the river flats are clear of snow, while around the mouth of the Muddy River open, grassy benches afford winter range for all the horses of the Indians who live along the Smoky. A short way above the mouth of the Jackpine we arrive at No Luck Creek, which comes roaring down through a deep canyon from a gap in the mountains. It has a timbered valley almost to its head, where it ends in a glacier, and only gets a couple of feet of snow. All the mountains along its sides are wind-swept and clear of snow as those along the main Jackpine. Up a little branch on the left side above the lake is another of those peculiar wind-swept basins with small glaciers around the edges. The wind up there must be something awful at times, as the valley floor is swept clean of snow.

From No Luck Creek to within a few miles of Short River the Smoky is a succession of canyons, falls and rough water. It is all burned and no trail is now open, if ever there was one. The east is the only side that it would be possible to get along with horses. Three miles below Short River we strike the first open shingle bars, where the snow has been swept away by the "Chinooks." From here up to Glacier Creek the shingle bars will be swept clear of snow. All the way down the Smoky the mountains are wind-swept and are the winter

home of the mountain goat. At Glacier Creek we will again have to wear our snowshoes, both in the timber and along the shingle bars. Coming up the Smoky from Short River one is apt to mistake Wolverine Valley for the valley of the Smoky, as the Smoky takes quite a turn to the left. But above Glacier Creek you begin to notice the Smoky Valley opening up.

With cabins every ten miles, with grub and blankets there, I cannot see why winter snowshoe trips should not be as popular almost as summer trips. The weather is usually much milder than out in an open or level country, and cold, stormy days are uncommon. The heavier falls of snow come without any wind, and usually with the temperature very little below freezing. I wear the same weight of woollen underwear out in the mountains in winter as in summer, and wear a flannel or army shirt over the top of the usual khaki shirt. Usually a mackinaw coat or overshirt is taken along for sleeping out on the trail in open air camps. One's feet are the most difficult to keep comfortable; if you are going to snowshoe you must have plenty of protection. Big buckskin moccasins, two or three sizes larger than usually worn, so that you can get on a big pair of German socks, four pairs of heavy woollen socks and a half-inch felt insole sewed fast to the soles of one of the pairs of socks (otherwise the insoles will work out and get anywhere else around your feet than where you need them) are best. Buckskins are only good when the weather is below zero, as they take up moisture like blotting paper. My personal experience has been that oil-tanned moccasins will have to be used most of the time in the mountains for snowshoeing. They are slippery and meaner than a scree slope, but they will keep your feet dry and, if they are not tight, your toes will not get blistered as is so often the case with buckskin moccasins.

For the hands, always wear light woollen mittens with buckskin pullovers, so that when your hands get too


NORTH
Scale - About 4 Miles to 1 Inch
Big Mountain
River of Robson
Sheep Creek
Muddy River
Smoky River
Grand Cache cr
Sulphur River
Pass 500'
Alps
Alps
Pass 5,500
West Branch of Jackpine
Canyons
Alps
Alps
Alps and Parks
Alps
Ptarmigan Lake
Canyon
Meadow Lake
Jackpine River
Big Glacier
Short River
Rock Slide Cr
Sulphur Pass 000'
Alps
Alps
Mt. Chown
Jackpine Pass 7,000'
Mt. Bess
Twin Tree Lake
Stony Pass 6,700'
Alps
Big Snowfields and Glaciers
Caribou Pass
Wolverine Pass 5,500
Mt. Pamm
Calumet Snowfields
Calumet Mt.
Moose Pass 6,700
Mt. Longstaff
Whitehorn
Robson Pass
Lake Adolphus
Berg Lake
Mt. Robson
Smoky River
East Branch Smoky

warm you can take off the woollen mitts and wear the buckskins. You will then have dry mittens along towards evening when it starts getting cold again. Never use a lined leather mitten, for your hands will sweat during the middle of the day and along towards night your mittens will be frozen on your hands, and they are difficult to dry.

For the lover of the mountains there is no reason why he should not enjoy a winter trip equally as well as a summer one, provided he is properly equipped. The mountains are just as beautiful and interesting, and travelling is much simpler with all the rough places smoothed over by snow. Windfalls and brush disappear under an ample covering; there are no dangerous fords to cross, no silt-filled streams. All the water is as clear as crystal, none coming down from the glaciers during the winter months. Everything is clear and bright and the mountains covered with a dazzling white mantle of snow. Of course, during the snowy winter months climbing mountains is too dangerous to be indulged in as a pastime. Leave that for the goats!

THE EXPEDITION TO "MT. KITCHI"

A New Peak in the Canadian Rockies

By Mary L. Jobe

"Mt. Kitchi"* is undoubtedly one of the most beautiful and interesting peaks in the northern Canadian Rockies. During the past few years the existence, character and exact location of this "Big Mountain" have been matters of much interest to Alpinists familiar with the Mt. Robson country — to pioneers and explorers who have travelled north of Mt. Robson, on or near the Divide.

In the days of the early survey, R. W. Jones, a Grand Trunk Pacific engineer, coming in from Grand Cache, had travelled southeast along the Continental Divide, approximating the location of the mountain as well as Fraser tributaries from the Divide itself. The "Big Mountain" had been seen by Prof. J. Norman Collie and Mr. A. L. Mumm at the time of their ascent of Mt. Bess in 1911. Fred. Stevens, a pioneer, in company with two other men, had reported in 1912 the existence of a big snow mountain which they had seen while locating timber limits on one of the northern tributaries of the Fraser. The same year Mr. S. P. Fay,** of Boston, had seen the peak from the headwaters of Peace tributaries, not far from Jarvis Pass. The summers of 1911 and 1913, members of the Canadian Alpine Club—Donald Phillips and others—had seen this northern peak while climbing in the immediate vicinity of Mt. Robson. However, so far as we were able to secure information from the Canadian authorities, no one except Donald Phillips had attempted to explore the region immediately northwest of Mt. Bess in the Fraser watershed. In 1912 and 1913

*"Kitchi" in the Cree Indian language means "Great," "Mighty."

**We did not know his route until after our return.

he had explored the Beaver in the Fraser watershed, and also the Big Smoky and the Jack Pine Rivers in the Peace watershed, and had made a sketch map of that region.

With these various reports and rumors of a fine, wild country beyond the Big Smoky, as at least one important incentive, I decided to attempt the journey from Mt. Robson to the "Big Mountain." Accordingly, during six weeks of the summer of 1914, this expedition was made. My companions were Miss Margaret Springate, of Winnipeg, a member of the Canadian Alpine Club; Donald Phillips, the chief guide of the expedition who, in 1909, with the Rev. Geo. B. Kinney, make the first ascent of Mt. Robson;† and a second guide, Bert Wilkins. We traversed an area near the Continental Divide approximately between 119° and 121° west longitude and between 53° and 54° north latitude. Our point "farthest north" was on the watershed of the Fraser tributaries, about one hundred miles in an air line northwest of Robson station, and by trails, largely of our own making, a distance of nearly two hundred miles.

To locate the peak, we first climbed from Moose pass to the summit of "Mt. Pamm," an easy snow-peak less than 10,000 feet, situated about twelve miles northeast of Mt. Robson. Here, with the aid of glasses, we had our first glimpse of the "Big Mountain." It rose a great, white pyramid, shining out through the distant haze to the northwest, and lifting its glaciated head far above the black peaks of its immediate environment. Our compass bearings showed it to be almost on an exact northwest line from Mt. Robson and also on a line with "Mt. Bess" and Mt. Chown. These last named peaks are about twenty miles north of Mt. Robson. These readings from

†Kinney and Phillips did not reach the summit. The first complete ascent was made by Foster and McCarthy, led by the guide, Conrad Kain, at the time of the Alpine Club's Camp in 1913.—Ed.

Mt. Pamm served as our guide during the early part of our trip, until we reached the Middle Jack Pine. It was impossible to estimate at this time the distance of the peak north of Mt. Robson. It *seemed*, perhaps, eighty to ninety miles away, but that was a mere conjecture.

Our general line of travel may be described as follows: Commencing at Robson pass, the route lay down the valley of the Big Smoky, beyond the mouth of Wolverine creek to the mouth of Glacier creek. Thence up Glacier creek, across Bess pass, Bess shoulder and Jack Pine pass. From the valley of the main Jack Pine to the Middle Jack Pine, Jones pass, and to the head of the west branch of the Jack Pine. Beyond this point we reached the Fraser watershed, crossing the valleys of the Fraser-Smoky and tributaries, and reaching finally the southeast branch of the north fork of the Fraser, the Big Salmon. Here, encircled by the two great arms of the Big Salmon is "Mt. Kitchi," well beyond the Great Divide, on the British Columbia side. The altitudes herein given are the result of aneroid readings; the directions, the result of compass bearings.

From Robson pass camp we started north with an outfit of four pack-horses and four saddle-horses, travelling along the Big Smoky, a large tributary of the Peace, which heads in the Robson glacier. The first two days out there was heavy rainfall, but this we welcomed, as it diminished the volume of the Smoky. A few miles from its source it becomes a sizeable glacial river, and its fords are not to be trifled with in a high stage of water.

The first four days out there was a trail, extremely rough, but more or less distinct. It led down the Smoky, up Glacier creek to the grassy, tree-flanked meadows of Bess pass, 5,500 feet, across Bess shoulder, 6,400 feet, and Jack Pine pass, 6,500 feet, where the going is very steep and rough. The descent on the north side of Jack Pine pass was the steepest place I had at that time ever seen horses

traverse. Exciting though it was at this time, on the return trip it seemed an every day occurrence, so much had been added to our experience in the interval.

From the Jack Pine valley both Mt. Bess and Mt. Chown are singularly impressive. Scores of small streams and waterfalls descending from the hanging glaciers mingle their milky waters with those that filter down through green woods from some lovely, clear-water lakes on the opposite side of the valley. Beyond our Jack Pine camp, at the foot of the pass, the only trail was a snow-shoe trail which Phillips and Frank Doucette, his trapping partner, made in 1911. Here we had two days of fearful going—muskeg too soft to hold up our horses, and woods to travel through where considerable chopping was required.

Beyond the middle fork of the Jack Pine, we reached a pass at 6,200 feet, which we have designated as Jones pass, the point from which Jones travelled back to Grand Cache. From our camp at this pass we climbed a nearby ridge, 7,500 feet. Here to the southeast Mts. Robson, Whitehorn, Resplendent and Pamm were plainly visible; west of northwest two black peaks (we called them the "Black Twins") were the most prominent nearby features. We were satisfied to note that our course was correct, for the "Big Mountain" we saw quite plainly north or northwest of these twin peaks. It seemed much further off than Mt. Robson.

For several days succeeding, as our course was to the north of these peaks, they continued to be an unmistakable landmark. From our station above Jones pass, the "Big Mountain," with its great snow and ice abutments, was more prominent than any other feature of the northern landscape. Great, tumbling glaciers everywhere surrounded it. The summit seemed a long, knife-like arête with a long slope to the southwest and another to the northeast. Through the glasses the south

face appeared extremely difficult. As is usually the case in these ranges, we later found the north face difficult. From this station all the main ranges lie northeast and southwest. There were only four ranges visible to us between Jones pass and the "Big Mountain." Instead, we crossed eight ridges or passes later on and at this point we were less than half way. It had commonly been supposed that the "Big Mountain" was not far beyond the head of the west branch of the Jack Pine. Our observations proved beyond doubt the error of this conception, and showed us that we still had a long way to go.

We were now practically at the end of Phillips' knowledge of the country, and on the main Jack Pine had left all signs of trail behind us. From Jones pass we cut our way down a steep declivity to broad, open muskeg on the Jack Pine. After travelling about six miles through this meadow we came to a low pass, 5,300 feet, filled with beaver dams and houses. We named this "Beaver Dam" pass. It separates Fraser and Peace waters. Another broad stretch of muskeg, and we reached another pass, on which a huge avalanche of trees and rocks had descended. "Avalanche Pass," 5,300 feet, likewise separates Fraser and Peace waters.

Our further progress was here checked by dense woods filled with an undergrowth of devil's club and rhododendron of the British Columbia variety. In fact, from here on, every timbered ascent or descent meant most serious and exhausting exertion for both man and cayuse. I think it impossible to take cayuses over steeper, rougher places than we negotiated during the remainder of our trip to the "Big Mountain." The northwest side of Jack Pine pass which had seemed a thrilling descent when we had crossed it several days before, now, in comparison with these British Columbia mountains, seemed like an hour's pastime.

There was no possibility of moving our outfit through such a wilderness. A less hardy and determined guide would have pronounced it the end of our journey. However, for twelve hours Phillips and Wilkins cut out a trail over the mountain to a lovely, clear, blue river, the Fraser-Smoky. The next day we moved our outfit over a mountain shoulder at 6,150 feet and down to the east branch of the Fraser-Smoky, 4,600 feet. The flats of the Smoky are filled with beaver houses, dams, trails half a foot deep, and cuttings, while in the forest adjacent we found moose trails as well worn as any pack trail. In some places they were worn down two feet below the natural, mossy surface.

To cross the next mountain, our men cut out twenty-four switchbacks in making three-quarters of a mile of trail—a twelve hours' job. The open Jack Pine forests of Alberta were indeed far away. We got up the switchback trail in one and one-half hours, and then struck alpland with a long ridge beyond. We found a pass at 6,400 feet near a beautiful crescent-shaped lake. We camped at tree-line (5,900 feet) below "Crescent Lake" pass. From a peak north of the pass Phillips discovered another pass, and mapped out the morrow's route over alpland.

The next day we crossed "Eagle" pass (eagles were flying about in great numbers and the ground was strewn with feathers), taking our outfit along the edge of a sizeable snow-field at 6,200 feet. We travelled north by northwest along the side-hill almost at the same altitude during the greater part of the morning. We passed the Black Twins, leaving them to the west. Here was stretched out before us a great alpine basin, probably fifteen square miles, presenting a wonderful vista of soft, sweet alpine grass, multi-colored alpine flowers, and low growing balsams. Beyond Eagle pass we came into the basin of the west branch of the Fraser-Smoky. Across the southeast tributary of the west branch we came to

what seemed an easy pass at 6,500 feet. As the other side proved to be only cliff, scree and rock-fall, we turned west and crossed two more alpine summits in four miles. The latter, 6,400 feet, was snow-filled. The slopes leading up to this pass were blue with forget-me-nots. Below "Forget-me-not" pass, we had four hours of maddening trail cutting down a rhododendron descent of 1,500 feet. We made camp on an old Indian camp ground, on a beautifully clear stream, "Forget-me-not" creek, another tributary of the west branch of the Fraser-Smoky. Here the teepee poles were grass grown and rotten, left there years before, doubtless by Crees who had probably come in from Grand Cache.

The next day we crossed Forget-me-not creek and travelled all day over rhododendron and scrub balsam ridges and side hills, coming at night to "Last Hope" camp, 5,500 feet. There was grave doubt about our taking our horses any further. In fact, the descent of all of the ranges on the north side was so abrupt that it was most difficult to move our outfit in such country. It was, therefore, with much trepidation that we finally came in to our Last Hope camp. We were still several days of hard travel from our objective point.

From a peak above Last Hope camp, Phillips discovered a pass to the northwest. The next day we moved our outfit to "Last Hope" pass, and there from its snow-filled summit had our first really good view of the "Big Mountain." We made a 1,500 foot descent over treacherous, sliding shale to the valley beyond. It was unquestionably the most difficult pass our horses crossed during the entire summer. We crossed three more snowy ridges before halting our outfit for the last time. Below the third ridge the forest was so dense and the descent so abrupt that we considered it impossible to take our pack-train further. "Back packing" was the only thing left to do. On a small tributary of the main west branch

Photo, Mary L. Jobe

MT. KITCHI FROM THE SOUTHEAST SHOWING THE TOWERS

of the Fraser-Smoky we made our permanent base camp, and turned our horses out into a big alpine meadow to graze.

On the morning of August 19th we took our climbing outfits and four days of grub on our backs and started for the "Big Mountain." We hoped to reach its base that night, but unfortunately did not reckon upon climbing through even thicker scrub and undergrowth than we had hitherto encountered. We fought our way through thickets of alder and devil's club in full leaf and higher than our heads, until we reached the west Smoky-Fraser, which we forded in two and one-half feet of water. At this point the river flows in a general southwesterly direction before turning to the south. This doubtless accounts for the fact that it has been mistaken for a tributary of the Big Salmon when seen from the Divide.

On the mountain beyond the west Smoky-Fraser we had six hours of hard climbing through intense heat and without any water to drink. Climbing over a rocky ridge beyond tree-line we came into a magnificent alpine amphitheatre, rock-filled on its northern and eastern sides, but with long stretches of alpine grass and flowers, and with lovely clear streams, and little lakes on its western and southern sides. From a ridge beyond this amphitheatre we had our first uninterrupted view of the great bulk of Mt. Kitchi. We were looking at it directly from the southeast. Its snowy peak, on this side apparently almost perpendicular, rose from a massive base of rock. Two impressive rock towers form the easterly base and are separated only by a sharp pinnacle of rock. The more easterly of the two is apparently 7,500 feet, while the more westerly one is probably 8,000 feet in elevation. The southerly base consists of two tiers of cliffs, separated by a narrow line of snow. Across towers and cliffs, bands of beautifully coloured strata—black, brown, red, lavender, yellow, purple and gray—are

distinctly traceable, and have a downward dip towards the south. On the extreme southern base of the mountain, under a long line of hanging glaciers, the rock strata assume almost a semi-circular form, extending from timber-line, one thousand feet or more upwards, then sweeping back again into the timber, a quarter of a mile beyond. On the southeast face of the mountain, at the base of the cliffs, is a small glacier bowl containing a glacier; at the base are three hanging glaciers.

To the north of Mt. Kitchi we saw a sharp snow peak—probably 10,000 feet in elevation. It has been previously designated as "Mt. Ida." Adjacent to it are rugged low mountains, many bearing large snow-fields. Twin peaks with a sizeable glacier between on the southeast slope are the most prominent features from this view point.

Through a long, circuitous valley on the east and south sides of the "Big Mountain," a large glacial river flows to the southwest. It is the southeast branch of the Big Salmon. The main stream is born in the great ice caves of the east glacier of Mt. Kitchi, while its two important northeasterly tributaries drain the low mountains to the east. The valley of the Big Salmon is densely wooded with spruce, cottonwood, poplar and balsam trees.

Our first day out we made camp at tree-line, as our progress in the direct line towards the mountain was now hindered by steep cliffs. It was, therefore, necessary to make a detour to the west and reach the valley of the Big Salmon much lower down than we had anticipated. Travelling up the valley, we crossed the two northeasterly tributaries, the one on a log jam, the other on a tree Phillips felled. We intended to camp on the terminal moraine of the east glacier, as it runs right into the timber and obtaining fuel would have been easy, but an approaching thunder-storm made camp necessary when we were about a mile below the moraine. We

barely got the little silk shelter tent up and our packs inside when the storm broke. All night the rain and snow fell. The next day was an impossible one for climbing. The rain stopped at three and Phillips went out to reconnoitre. He felled a tree across the river—still too powerful to ford even at this proximity to its source—and crossed the glacier to look out a route for a possible ascent of the mountain. We had seen no feasible route from the south, while the east face breaks off even more abruptly. We hoped that the north or west slopes might be climbable. However, our hope was not based upon our observation of the mountains in this region, for the north side is usually the most abrupt. Phillips returned at ten o'clock, saying that he had seen a possible route up to the base of the last peak. Beyond that, he could not see.

The next morning, August 22nd, dawned cloudy. We started at 6 a.m. and crossed two miles of deeply-crevassed glacier. This east glacier is approximately three miles long and a mile and a half wide and fills an amphitheatrical recess, the east base of Mt. Kitchi rising from the head of it, the two towers from the south side of it, and a long, rocky ridge to the north of it. Its myriad glacial streams unite to form the headwaters of the southeast branch of the Big Salmon. This glacier is a maze of crevasses. It is fed by icefalls from the big peak itself, from the northeast glacier, from the hanging glaciers on the two towers, and from adjacent ledges leading up to the main peak. Both the terminal moraine and the north lateral moraine are conspicuous because of their extent. At the terminal moraine our aneroid registered only 4,000 feet in elevation. It is apparent, therefore, that the snow-line at Mt. Kitchi is 1,500 feet lower than it is at Mt. Robson. As the grade of the east glacier is easy, we crossed it in good time, although our route was somewhat circuitous on account of the great width and frequency of the crevasses.

From the north moarine we climbed over rock-falls and cliffs to the northeast glacier. Where this glacier breaks off above the east glacier its ice-forms looked like huge animals. We named it the "Menagerie" glacier. This glacier, and in fact all of the glaciers on the peak, are constantly avalanching. The roar of the falling ice may be heard many miles away. Shortly before reaching the second glacier it began to snow. We put on our extra sweaters, mittens and caps. For two hours we travelled very carefully over the glacier, hoping that the storm would cease. Instead, it snowed the harder. Climbing became dangerous and we turned back at 7,000 feet, having climbed 3,000 feet from our camp. We were encased in ice at this elevation, and by the time we reached camp we were drenched to the skin. As back-packing does not admit of the luxury of a change of raiment, we dried out by the fire. It cleared up at 11 p.m.

Owing to the extra day consumed in reaching the base of the mountain, and the previous day of storm, we were now on very short rations. On our return trip to camp we killed six ptarmigan, and this additional food supply made possible the thought of climbing again on the morrow. However, at 6 a.m. a light rain was falling, and it was snowing hard on the mountain. Our immediate return to our base camp was imperative. Although there were signs of all kinds of big game around us, they had effectually vanished at our approach. Our return trip through the rain-soaked underbrush was melancholy. My one hope was to get some game and return for another attempt on the mountain. At noon we had eaten everything but a little flour, tea and four slices of bacon. We went home by a different route, crossing the southeast fork of the southeast branch of the Big Salmon, considerably above the log jam. About 5 p.m., after climbing 1,500 feet up the worst rhododendron mountain yet encountered, we were fortunate enough to kill a

Photo, Donald Phillips

EAST FACE OF MT. KITCHI
Dotted line shows route of ascent

caribou, which supply made possible a return trip. However, as Wilkins had developed rheumatism in his shoulder, it was decided that he should return to the base camp. Miss Springate had not attempted to climb on our first attempt, and now, although eager for the experience of a second trip to the base of the mountain, she graciously abandoned any idea of going back when she knew that it would be impossible for Phillips to pack supplies for three. It was her splendidly unselfish spirit displayed at the critical moment which made possible the further exploration of Mt. Kitchi. Phillips and I accordingly reduced our packs to meagre necessities, and returned to our old camp, August 24th. We took with us part of the tea and flour, but for the next four days we lived mainly upon the fresh-killed caribou. We had no salt. Instead of having a tent, we strung up a piece of canvas for a windbreak and slept by a fire.

August 25th, we started to climb at daybreak, following out same route across the east glacier, over the moraine and thence across the cliffs to the northeast glacier. We found this glacier steep and deeply serrated with crevasses—some of them twenty feet in width and easily forty feet in depth. This northeast glacier is flanked on the north by a constantly avalanching hanging glacier. We crossed the second glacier, reaching an elevation of 7,800 feet. At this point we had our first view of the northwest face of the mountain. The peak shoots up into the sky, a snowy pinnacle of ice and rock, everywhere wildly broken. Two bands of rock cliffs with numerous chimneys extend across the northwest face; between these is a constantly avalanching ice and snow slope. Above the second band of cliffs the crest is a mass of ice, broken by crevasses and séracs. Through the glasses it showed blue-green; with long icicles depending across deep caverns. The northeast arête, which is the natural line of ascent, is everywhere broken. It was obviously impossible for us with our limited time

and equipment to attempt the ascent. We could easily have climbed eight hundred feet further, but that would have been futile. We built a cairn at 7,500 feet, and returned to our camp after having spent fourteen hours on the mountain.

The main peak on the north rises probably 2,500 feet above the base of the lowest cliffs. From this face, a long flowing glacier extends to the west, while on the ridge above the glacier are numerous hanging glaciers. They all drain to a deep valley with a broad river flowing through, evidently the main branch of the Big Salmon. Across a pass to the northeast of Mt. Kitchi are two lovely clear-water lakes.

Heretofore, practically every one who has seen Mt. Kitchi has estimated its elevation at 12,000 to 12,500 feet. When we stood at the base of the last peak, our aneroid registered only 8,000 feet. It seems doubtful whether the crest of the main peak is more than 3,000 feet above its ice and rock abutments. The mountains surrounding it are low; the snow-line is only 4,000 feet, consequently these two conditions alone may lead to an exaggerated estimate of the height of the mountain.

In conclusion: I wish to say that the main factors in our success were the splendid ability, unflinching courage and determined effort of Donald Phillips.

Note—Names in inverted commas have not yet been approved by the Geographic Board of Canada and must be taken as tentative.

Photo, F. W. Freeborn

CATHEDRAL MT. CAMP, 1913
Below the Watch Tower. Men's quarters

THE CATHEDRAL CAMP
(1913)

By Rev. George A. Mitchell

"If thou art weary and beset
with worrying cares and cannot rest,
Go to the fields and woods."

Instead of Longfellow's appeal, I heard the call to join the camp of the Alpine Club in the Canadian Rockies. As we clambered off the train at Hector, and when our bags were handed down to the gravel bank beside the track, our friendly porter said, in a sadly serious voice: "Hope you'll like the place; good luck to you."

Then the train on which we had spent so many happy hours moved off, and we looked about to see what there was to like; through the mist there was only the immense water tank and the small telegraph station. The little Lake Wapta beside it looked dark and troubled in the dreary, drizzling rain, but the heavy clouds soon lifted and in the spots of bright sunshine, we had a sweep of vision never to be forgotten. This was the beginning of the Kicking Horse Valley, and through it the mountain cataracts were rushing down in a mad race to the Pacific. To the east, a few miles back, we had crossed the Great Divide, where the waters swirl through the Bow River to the Atlantic. In every direction, each side of these valleys, and along the Great Divide, were huge mountain ranges, challenging us to climb their snowy peaks; the beckoning sight made us anxious to hasten up to camp and make ready.

We stored our travelling baggage at the base camp; the pack ponies set off with our blankets and camp dunnage, and we, in mountain dress, with alpine boots and puttees, sweaters, ice-axes and rucksacks, set out for our

first clamber. It was only five miles up a narrow, steep trail to camp alongside Cataract Brook but we were fresh from the luxurious sleeping-car, and judging by our feeling it seemed a dozen.

After two hours hard work—it seemed hard work then —we found a cluster of white tents scattered about in a beautiful balsam grove at the base of Cathedral Mountain. All the layout gave full proof of good design and experienced construction, with every convenience and comfort possible, considering that, of necessity, everything was of rustic material or brought in on ponies. We were of the first party of travellers to arrive, and the hearty greetings of those already in the camp and the Chinaman's prompt, tin-pan gong, calling us to two o'clock luncheon, gave us a comfortable homelike feeling, and this notwithstanding lowering skies and the snow which had fallen the previous day, now shovelled into heaps outside. The rustic tables of flattened poles chinked with moss and covered with oilcloth, the rough log seats, the granite dishes, and the mountain menu, did not in the least hinder the gratification of a real mountain-air appetite.

The camping arrangements, the packers with their ponies bringing in the supplies, the daily programme for parties climbing, the evening entertainments around the camp-fire, were all a marvel of good planning, executive ability and energy by the Director, the Secretary, Dr. Bell, the boys from Calgary and many others who were eager to help make this camp a decided success.

Tent No. 7 down by the brookside was full of professional gentlemen all bubbling over with excitement in anticipation of a holiday among the Rocky Mountains, The first night and its surroundings were an interesting study to a freshman. It did not seem like night, even at 10 o'clock, for a rosy glow lighted up the whole camp and there was no need of a candle. The raging torrent a few

feet from our tent and the frequent rumbling, pounding, crushing echoes from many snow-slides in the distance, presented so many new sensations that we were slow to turn in for the night. I found it required both skill and genius to prepare a comfortable mattress of the fragrant balsam brush and then to roll up in blankets formed into a sleeping bag. After such a hard long day it was easy to sleep and hard to wake, even when the gong called for breakfast in bright sunlight at six.

The gathering at the tables, the hearty greetings of the crowd, the organization and starting out of the first parties for short trips and their early return made an interesting beginning of camp life. The Ladies' Tea-tent was always the first attraction to returning climbers, but the drying tent with a hot fire was a necessity and a great relief and comfort after the wet and muddy tramp of the first day's outing. Old friends and new comers gathered around the evening camp-fire and the official opening speech of Director Wheeler for 1913 made an interesting beginning for the days to follow.

My first test was with a party booked for Lake Oesa. First a steady climb of three miles and up a grade of a thousand feet brought us to the beautiful glacial Lake O'Hara, three-quarters of a mile long and half a mile wide. The water had that remarkable blue color peculiar to the lakes in this high altitude. On the south side of the lake was an auxiliary tent arranged to shelter our climbers on a two-day trip. On this day, after doing justice to the cook's sandwiches of bacon and jam, we found the trail around the lake to the reserve granted by the Dominion Government to the Alpine Club, with its four iron stakes and a cairn to mark the location; this is where a shelter cabin will be erected by the Club. Still farther around the lake to the north side, and up a high rocky slope, we reached a shoulder at the south side of Mt. Huber. From this high point we had a grand view of many mountains in every direction, with their interest-

ing valleys and lakes below. Down the slope we came to Lake Oesa, a small lake similar to Lake O'Hara, but with many floating icebergs. Here we saw a beautiful waterfall spouting out from a perpendicular wall 300 feet high and at the base it scattered into little silver streams to the lake far below. It was a long hard day, and we who were new to mountain trails were surprised and flattered that we could cover these fourteen miles in eight hours and yet be able to meet with the crowd around the camp-fire, sing our songs and boast of our first day's climbing.

One of the most interesting two-day trips was to Lake McArthur. On our way we had our first experience of a mountain meadow, which we came to through a narrow pass south of Lake O'Hara, and it unexpectedly opened before us like a beautiful park. It was a great surprise to find in the centre of it a well built rustic cabin which had a large stove in one corner, with some cooking utensils and at the end two raised platforms for beds. It was erected by the C.P.R. as a shelter for tourists making a trip to this most attractive part of the mountains.

Another climb brought us to a still more beautiful meadow, the pasture land for mountain goats and the home of whistling marmots and little mountain gophers or rock rabbits. Here was a second auxiliary tent with Peter as cook, who prepared most elaborate and tasty meals for hungry climbers.

In the afternoon we climbed still higher to find Lake McArthur, said to be the highest glacial lake of any size in this high range, at an altitude of 7,359 feet. Here, on the 18th of July, the Judge and the writer had an old time snowballing contest, while the Major's wife gathered alpine blossoms amongst the rocks. This spot is far above tree-line and only the little flowers, the moss and the heather show evidence of vegetable life. Although many streams pour down from the mountain glaciers, it

THE LAKE McARTHUR CAMP

Photos, F. W. Freeborn

UNDER THE CANOPY

is singular to note that there is no visible outlet from this lake except a swirling movement of the waters at one part which would indicate a subterranean passage. Little icebergs float about the blue waters, giving the lake an interesting glacial appearance.

Leaving this beauty spot with all the high mountains aglow with that strange golden reflection from the setting sun, we hastened back to Peter's meadow-camp for supper; and such a supper! Our next concern was to open our dunnage bags, brought up by the packers and make ready our blankets for the night. In addition to balsam brush, rare at this altitude, we gathered a goodly supply of white heather from the nearby rocks for our tents, and the ladies especially had the unique delight of sleeping on springy heather blossoms. We had mattresses fit for kings, the fragrance of which could not be described. Prof. Coleman reports four varieties of heather in these high altitudes. We found at this meadow three colours—red, pink and white; it grows over the rocks like a short, strong vine, and seemed like a familiar friend greeting us in the far away Rockies.

Although the sun had disappeared for some time, the mountain tops still held that peculiar rosy glow, which is the charm of the long twilight at this altitude of 7,200 feet. The solitude and stillness were oppressive yet suggestive of inspiring meditations; we found nothing in the new surroundings to prevent a long and peaceful sleep, sound except for the call of the early climbers at 4 a.m. At such hour the morning sunlight is seen bursting over the summit of Mt. Schaffer, 8,824 feet high, to the east of us. On the west is Mt. Odaray, 10,165 feet, its whole slope of snow and ice and rock aglow as if a flame of gold. In the distance to the north is Mt. Huber, 11,041 feet, its lofty peaks catching the rays of the morning sun. It is impossible to describe or paint the beauties of the mornings and evenings at this altitude. Here at the dividing of the waters, are all the extremes

of high and low, light and shade, sunshine and shadow, snow and ice, cold and heat; here are all the combinations that give this spot its attraction.

While we at the camp were still in the shadow of the valley, we could easily distinguish four of our party climbing along the ridge of Mt. Schaffer, up against the sky-line in the bright sunshine before they passed over toward Lake McArthur. They had left camp at 4 o'clock to be high up among the peaks to see the glorious rising sun on slopes and valleys. Others were climbing Mt. Odaray but were soon lost to view. Each company on returning reported hard climbs, but were well repaid when they reached the summits by the most beautiful, varied and extensive views.

I spent the morning writing letters in the hot sunshine, sitting on a huge rock which had been carried down to the meadow by glacial action at some early age. The little rock rabbits and great numbers of marmots playing about me were very interesting company. The marmots would come out of their burrows, give a sharp whistle as a protest to the strange intruder, then back again under a rock and return in a few minutes from behind another with the same note again.

There are no fish at this altitude and I saw no small birds, but several miles to the north I spied a very large eagle circling higher and higher over Mt. Huber—judging by comparisons it must have been over a mile above the summit. As I studied this eagle and what it could see and what I could see from my own point of vision, I was reminded of a poor woman who had a large family in a very small house and subsisted on a very limited scale; as she saw the ocean for the first time she exclaimed: "Thank God! I have seen something where there is enough of it." We certainly can say when we measure our western mountains, 600 by 1,700 miles in extent, that we have something in Canada where there is

enough of it. We see enough to provide the fountains and reservoirs for our western wheat fields and enough buried wealth to satisfy future generations; at least a territory large enough to provide a limitless area as an attractive resort for men of science, explorers, prospectors and mountain climbers.

On our way back to camp after our two days' visit to McArthur, we took time to notice the new varieties of flora of this locality, and we found specimens of the rare and beautiful bloom of "Lyall's Larch" with its extraordinary colouring. On our return, Miss Vaux gave us a very interesting address on this rare bloom, which only appears once in three years.

This evening we were much surprised and pleased to have a party of lady visitors join us at our camp fire. We discovered they were camping at Lake Narao, between us and the Hector station, and were a party of teachers and students from Vassar Ladies' College, who were on a riding tour in the mountains.

Although at my advanced years I did not attempt the high and exhausting climbs which attracted the younger members, yet I had a most interesting time watching others do the hard work, climbing Cathedral Mountain, which sloped up from the west side of our main camp to an altitude of 10,454 feet. It was unique to watch this climbing party one morning as they answered when their names were called and stood in line for the start at five o'clock with two Swiss guides. Shortly afterwards another party of us started to the east side of the valley bound for the Watch Tower, frowning above at an elevation of 8,000 feet. To us it was interesting and entertaining to watch the Cathedral party after they were above the tree-line while we were at the same height across the valley. We watched them slowly climbing and could distinctly count the five ropes with five on each.

We made our own climb first over burnt and fallen timber,

then over loose rock, snow and ice, until we reached the ridge, and there I was held by my feet for safety, while I looked over the edge and saw down a perpendicular wall over a thousand feet, and at the base a wide deep valley filled with glacier ice. It was now far more interesting, at this height and at least five miles distant, to watch the other party, than to regard our climb which was so much easier. Everyone is interested in watching other people do hard things and overcoming great mountain difficulties and reaching their goal. There seemed to be no other place where the mountain climber on Cathedral could be seen with such continued clear view and with such exciting interest as from this Watch Tower Crag. We still could see, with the naked eye, the climbers moving up hour after hour over the clear, white snow and under the burning sun. Though hidden for a time, no doubt resting for the final struggle, at last, like King Bruce's spider, they made one more brave climb. We watched and anxiously waited until with the glass we could see them gathered in a group at the cairn on the very summit. We gave them a hearty cheer, for they had finished the course. We wished they could have heard. Each lady and gentleman there had the satisfaction of knowing they were qualified to be recorded as Active members of the Alpine Club.

A remarkable thing occurred, they told us afterwards. While they were around the cairn at the summit, though the sun was shining clearly without mist or cloud, they were suddenly attacked by mysterious electric currents. Ice axes and everything of iron had to be thrown down. Every quick movement caused a sensation, and when one person touched another, there was a visible spark and a strong shock, and a Toronto lady was so affected that her hair stood straight up. They were all at first alarmed, but after the initial shocks, they began to observe the strange phenomenon with deep interest. The same day on Mt. Odaray another party had the same

experience. We from our Watch Tower Crag could discern no storm or change of weather conditions.

As our party was first in camp, we waited for the high climbers at the Ladies' Tea-tent. Finally in they came. Though exhausted and blistered by the hot sun, they were jubilant over their great achievement.

How easily one can start on a long tramp trip unknown as to destination and distance! It was thus with a comrade and myself on what proved to be a day's excursion into the Yoho Valley. An early start for Hector, then west to Cathedral station, we stopped to examine the noted Kicking Horse Pass. Here trains enter the Cork-screw Tunnel under Mount Stephen, then at the lower level the Spiral Tunnel under Mt. Ogden and then out again at a still lower level. This wonderful piece of engineering work was completed in 1909, and now there is a great saving of time and cost, as it requires only the regular engine and one "pusher" for the load instead of four on the former grade. The Yoho River is a raging stream with high mountains each side and the vegetation of the valley on the Pacific slope was an interesting study to one from the east. We had the luxury, for the first time during our camp, of tramping on a fine gravel road which extended from Field up the valley. The way back seemed long, and we returned in time for supper after a tramp of twenty miles, hungry and weary.

The Sabbath in camp was very hot, and all the torrents about us were racing at their highest level. Nearly everyone followed the home custom and devoutly joined in worship around the camp-fire. Prof. Freeborn and Mr. Don McTavish assisted by a strong choir led us in several hymns. The writer read the Scriptures, and the Rev. A. Gillies-Wilken delivered the sermon. The song-service in the evening, the weird shadows among the trees, the noise of many waters, and the enthusiastic

singing can never be forgotten. The late evening song was suddenly brought to a close about nine o'clock by an alarm of flood in the Cataract Brook which necessitated the ladies crossing hastily to their quarters, the water being so high as to be running over the log bridge.

Ruskin says of mountain climbing: "It is like soaped poles in a bear garden which you set yourselves to climb and slide down again with shrieks of delight." Fifty years ago another celebrated writer gave the opinion that "A large proportion of those who climbed Mt. Blanc have been persons of unsound mind." Such evidently was the opinion of our Chinamen, for they once said: "Too much high; every people much clazy." Whatever it was fifty years ago, it would have been quite correct and appropriate to have put at the top of our record of members, the old Roman qualification of a capable man: "Mens sana in corpore sano." Nearly two hundred climbers practically proved they had a "sound mind in a sound body."

The last night at the camp-fire, the lingering partings, the hurried packing, the 3 a.m., "Good-bye, boys," as our tent mate dodged out of tent No. 7 for a long tramp to Laggan, via O'Hara, Abbots Pass, Victoria Glacier and Lake Louise, is like a dream. Another party started a little later via Hector, the restful observation car, and then the new electric car up to the palace-like Chalet among the clouds at Lake Louise. It was a great surprise as we met all in the magnificent new dining-hall of this enchanting retreat and here enjoyed one good square meal seated on an easy chair with a back.

I loved the fountains, the rivers, the lakes and the woods, but now I love the mountains which seem like sentinels and guardians and challenge us to their snowy peaks. We still tarry in these delightful surroundings to spend a day at the Club House at Banff, and on its spacious verandahs far up the mountain side, we take a

last lingering look at the beautiful scenery of Bow River Valley and the vast circle of mountains. And as we pack anew our dunnage bags and label them to Robson Station via Edmonton, we wonder if the next fortnight can really excel the delight of the ten days just passed in Cathedral Camp. For myself I realize that something of real value has come to me during this mountain trip, not only in new and highly valued friendships, not only in the indescribable consciousness that I have been in close touch with the great forces of Nature, but especially in the stimulus it gives to be great in heart, to think great, and to do great things.

MOUNT ROBSON CAMP
(1913)

By K. B. Hallowes

I am afraid that my first record is one of dead failure. For half a day at Calgary I was very busy trying to remove all traces of the mere climber, and look like a "Shentleman," or its feminine equivalent. Pure loss of time! A fortnight at Cathedral Camp had done its work too thoroughly, and I was unhesitatingly spotted as, I dare not say a mountaineer, but one of those strange beings who always want to scramble up something or other just in order to see what is on the other side. However, one of the party assembled at Calgary station had so effectively concealed all traces of his Alpine eccentricities that he was favoured with the unbiassed opinion of a thoroughly sane railway porter who took the reasonable view of the uses of the human foot, and had no desire to keep on insecurely planting each one of his a little higher than the other until he had reached anything from 9,000 to 14,000 feet up in the air.

As far as the climbing of Mt. Robson is concerned, most of the camp retained their sanity very well—only really far-gone cases even attempted it — but, with the irony of fate, one of these was the very climber in disguise to whom the Calgary porter had unburdened his mind. One party, led by Conrad Kain, reached the summit, hitherto untrodden by the foot of man, but the other parties who set out on other occasions have no right to claim any superior mental balance, for we all know that it was not their fault that they did not make the actual peak, though getting very near it. It simply was that the cloud-spirit who claims Mt. Robson for his own, discovered that he had been caught napping and that mortals had dared not only to pluck his icy beard, but

DETRAINING EN ROUTE FOR CAMP

ROBSON CAMP, 1913

Photos, Eleanor McPhedron PACKING UP FOR HOME

to set their feet on the very top of his hoary head. So he called from the vasty deeps of his crevasses his guardians of fog, mist and storm, and bade them do their worst on all other invaders of his solitude.

But these are the works of the Titans—now for the efforts of a few of the rest of us! How cheerfully we started off from the base camp on Monday morning, July 28th. Some of the more attractive of us were especially glad to leave, as we hoped to escape from the very demonstrative affection of the mosquitoes, but there is, undoubtedly, a most flourishing branch of the Mosquito and Bulldog Alpine Club, and we found devoted members of it already encamped on suitable places, notably Smoky River and Moose Pass. They welcomed us with buzzes of delight and only ceased their keen appreciation of our personal charms when we modestly veiled them in the smoke of a "smudge." It is odd to think that some people can still enjoy life while sitting in thick smoke, with a cup of tea balanced on one knee, and a plate of porridge, bacon, dampers and a few other comestibles on the other, and trying to snatch a mouthful in the intervals of wiping away smoke-tears. Yet, I wonder how many of us, who made that glorious four-day trip, would have exchanged our Auberge à la Belle Etoile for the most luxurious hotel in the world.

The nineteen miles from the station, which the Grand Trunk Pacific had so nobly erected for us, led by a rough but most interesting trail into the heart of the mountains. In spite of the weather not being altogether kind, the scenery was too glorious for one to realize the length and hardness of the way. I had been told that a surveyor in that district had remarked that he would not care to do the trip, and wondered what the Alpine Club authorities were thinking about in suggesting it for ladies. Well, like Wisdom, the Director was justified of all his children, and I have not heard of anyone being one whit the worse for the tramp. In fact, I believe that some enthusiasts

tried to break pace-records. Personally—but far be it from me to discourage those who like to do nineteen miles uphill at the hundred yards' pace! Their first business, on arrival, is to make a fire, and this means tea, nice and hot and ready for those who appear on the scene a little later.

The camp seemed to settle down in an incredibly short space of time, and by the next day an atmosphere of home-comfort and domesticity pervaded the whole place. It was said of one British officer in the Soudan that if he pitched camp in the desert at 10 a.m., by midday his men had gardens with flowers growing in them. Much the same may be said of the officers of the Alpine Club, only they did not have to encourage us to plant flowers, as Dame Nature had been beforehand in that respect, and had covered the ground, even far above timber-line, with every variety of flowering plant, from the gorgeous Heath and Indian Paint Brush to the delicate white blossoms of the Grass of Parnassus and the tiny stars of the homely Forget-me-not. It was strange to find many kinds of flowers, which one had last seen by some placid English stream, clothing the base of the wild, gigantic peaks in the far Rockies.

As far as the scenery was concerned, no one need have troubled to leave camp. The spot which had been selected is one of such overwhelming grandeur and beauty that it was impossible to grasp the effect of the whole panorama in one day. One talks lightly of a mountain amphitheatre, but it is not easy to take a mental photograph of one. The scene is never the same for an hour together, for a mountain has more moods even than those attributed to woman, and spends much of its time in trying-on the latest confection in cloud-drapery and casting it aside for another yet more novel and bewitching. Perhaps the most exquisite effect is that obtained in the very early morning. The mountains do not expect Peeping Toms much before sunrise, but one

morning I surprised them. Every peak had thrown aside its robes of mist, and was bathing its snowy form in the pale pink flush of early dawn. It was as though so many opals had taken the place of glacier and snowfield. The sun rose above the ridge, and the opals vanished!

It must not be gathered from the above that we were not early risers at Robson Camp, but, for my part, I found too much to do on an ordinary morning to have any time over for the contemplation of the beauties of nature. First of all, one has to put on a fictitiously wide-awake voice when the Director's call announces that it is 4.30 a.m. Hair does not take long at that hour, ablutions are even more rapid—the wise climber washed and dressed overnight. But there are always boots to be put on. Oh, those boots! Why are they so very heavy, and so very hard, and so very cold and damp and uninviting at 4.30 a.m.? A fortune is awaiting the man who invents a climbing boot that one can love and respect at dawn.

It is a mistake to worry about puttees before breakfast. It is much better to have that first, and let the Director see that you are *really* there. Then you can, very hastily, and more or less unobserved, smuggle them on while he is making his final arrangements for the party. This usually happens on his insisting on some truant rope being brought back to a sense of its duty and the central tent. I am not suggesting that an Alpine rope has any more right than any other Alpine member to absent itself without leave, but, after all, there may be something to be said for it. Does it dislike hanging over precipices as much as a few of us do? I wonder! Some one asked me the other day to say truthfully if I really liked the actual climbing. I assured her that I did, except at those moments when I wondered if enough of me could ever be collected to make it worth while putting up a handsome tombstone with a touching inscription. She did not seem

to find the answer satisfying, nor would she believe that the mental anguish which one endures on a bad piece is as nothing to the triumphal thrill when one is safely over it. Whenever a novice has been "scared stiff" over anything, as sometimes happens, the yearning to go up something worse is all the more intense when one is safely back in a nice, flat camp. Can anybody explain the psychology of climbing? Especially I should like to know why a foothold which had looked so all-sufficing and comfortable as the guide went up, suddenly seem so ridiculously inadequate when it is a question of resting one's own weight on it. However, the moment passes, somehow one is at the top, and there all the toil of the way seems

"Like some sad vision told for joy at morn,
For joy that we have waked and found it but a dream."

Sunday is a day of rest; the domestic element is largely in the foreground, especially in the ladies' quarters, where experts laundered the latest Parisian home-spun socks and other dainty feminities. I have in my possession one snapshot of a camp *blanchisseuse de fin* which bids fair to rival the picture in the National Gallery of the celebrated Miss Gunning. Not even at our devotions could the camera let us rest! Woe betide slumberers at the camp-fire service, the camera has "fixed" them for ever and a day.

August the ninth. Farewell to you, Mt. Robson, and to your attendant peaks! Farewell, icy Berg Lake and smiling Lake Adolphus! Last of all, farewell to you, dear little white camp, which spelt "home" for us after many a long day's tramp—a home where we always found the Director waiting to receive his children, the Secretary always ready to answer questions and give advice, pens, ink, paper, club ribbon, Swiss nails and anything else which might be required, and a sympathetic crowd round the camp-fire eager to hear "all about it."

UPPER YOHO CAMP

Photos, A. B. Dawson

GENTLEMEN'S QUARTERS

THE CAMP IN THE UPPER YOHO VALLEY (1914)

By J. Macartney Wilson

"Shall I haunt the thronged valleys
Whilst there's noble hills to climb?"
—George Wither.

As I sit down to write this paper two incidents recur to my mind. The first happened to myself. Once I proposed to climb a historic mountain in Scotland in order to view a scene which has been described romantically by a Scots novelist, now, alas! no more. I asked my way of a Highland farmer who lived at the foot. He looked at me with some curiosity, and said: "What for dae ye want tae gang up there? There's naething but stanes." Little he knew of the lift of the spirit, the joy of the far reaching view, and the memory I would carry away. To him the mountain was no way to the stars; it was "naething but stanes."

The second happened to a friend of mine. He is now a well known theological professor, but at the time he was a boy of fifteen or so. An old farmer called at the house to see the boy's father, who happened to be out; so it fell to the boy to entertain the guest. "What's that ye're readin'?" said the farmer; and the boy responded with modest pride: "It's Ruskin." Totally unimpressed, the farmer further demanded: "And what'll that be guid for, noo?" To which the boy, still with modest pride, answered: "I suppose to improve the mind." And then the farmer said, without enthusiasm: "Aye, I doot that'll be aboot a'." Improving the mind was of no importance to him; had it been improving of the soil, or of the breed of sheep, he would have seen some good in such reading.

In like manner many a friend has said to me: "What's the good of climbing mountains? Is it not sometimes dangerous? And, anyway, what do you get out of it?" What can be said to such purblind souls?

"What do they know of climbing who only lowlands know?" Of what avail is it to speak to them of the fierce joy of a steady, difficult climb, or of the romance of a chimney? Who can paint for them the exhilaration of the view that lies below when one is ten thousand feet above the level of the sea? All we can say to them is "Try it and see." *Experientia docet.* "Come with us; join the A.C.C., try one good mountain climb, and you will never carp at alpine joy again."

"Others may reason and welcome. 'Tis we who are climbers know," as Browning says, somewhere.

I was in high spirits though sadly out of form, when at last I left Field and hit the trail for Camp. There may be finer walks than that which leads from Field over the Burgess Pass to where our camp was pitched; if so, I do not know them. True, it is hard on those who are short of wind, but for them there is an ignominious way round. You cross the bridge at Field and take the trail straight up the mountain side which walls on one side the valley of the Kicking Horse River. You climb steadily until you can see the station and hotel, like toy houses, three thousand feet below, and a toy engine puffing on the line; then you cross the ridge, and follow the trail, still at the same height, along the rocky shoulders of Mt. Field and Mt. Wapta. Pause a moment and look around to the left. Behind you rises the magnificent buttress of Mt. Burgess, one of the finest masses of rock I have ever seen, and far below, all a milky green, lies the Emerald Lake, clad in such beauty as only the lakes of the Rockies can show. After a while of this, you turn to the right and presently find yourself in the valley of the Yoho and delighted by the sight of

Summit Lake. Now you turn to the left along the shoulder of Vice-President and, after a short climb, follow the trail high up above the tumultuous river that tears along down the valley below. Presently, away across the valley, there breaks on your delighted eyes the vision of the Takakkaw Falls, dropping in virginal whiteness from the edge of the mountain wall, and finding ground some twelve hundred feet below. For long the vision accompanies you, and when you can no longer regard it, the thunder of the falls still booms, ever more softly, in your ears. A long scramble across very stony ground, and once more you turn to the left, following the Little Yoho. The trail winds gently upwards through the trees, until at last you find yourself in a little cirque enclosed by hills; and lo! before you are the white tents and the many flags of our camp.

For the sake of the uninstructed, it may be mentioned here that the Rockies are very desolate, a phenomenon that strikes the mountaineer who is accustomed to the chalets of Switzerland as strange. Once away from the railway, there are no dwelling places of man. There are no cows—or goats—to be milked; there are no shops, nothing but grass and stones and water and snow and trees. Consider, then, what it means to find, so many hours' journey from the railway, a camp fitted to hold at least a hundred and fifty guests. When I think of the bridging of the river, the making of the trail, the pitching of so many tents, the perfection of the arrangements, and the comfort we all enjoyed, I should like to sing the praise of the men who undoubtedly ought to be famous if they are not, who by their labour made such a miracle possible, to say nothing of the organizing capacity of Mr. Wheeler, for I believe it was he who arranged the whole thing. It may be there are others who should receive their portion of praise; if there are, I can only say that their modesty kept them out of sight. Once a day the ponies went down the valley. These patient creatures,

under the guidance of Jimmy Simpson and others, brought back our packs, our food and all that we needed.

Let me give the reader some idea of what our camp was like. I ought to preface my account by saying that we had an artist with us. He spent his time in the contemplation of the wonderful colouring of the mountains, meaning afterwards to transform them into the lovely watercolours; whoso possesseth one of them is a lucky man. We tried to persuade him to graduate, like so many others, by climbing Mt. President; and he was willing to do so on one condition, that we should so time our ascent that daybreak would find us on the summit. The mountains, he averred, had their most marvellous colouring at sunrise and sunset. But he could not get any of us to accompany him; none of us were keen enough on early rising. One evening at camp-fire we got him to give us a talk on Art; and he told us that the camp had surely been pitched on a site chosen by some one who had an artist's vision. He showed us the tents among the trees, the blue smoke arising, the little waterfall at the head of the glen, and the Little Yoho, a wandering line of white, winding through the middle, and binding the whole scene together into an artistic unity. And we all agreed with him.

On the far side of the stream, the tents were pitched which served as quarters for the men, who had that side all to themselves, and in the morning could be seen washing in the cold glacier stream, making frantic efforts to shave, or maybe trying hard to wash some article of clothing that had lost its pristine whiteness. Reader, did you ever try to wash a shirt with a cake of Pear's soap in icy-cold water, without the usual adjuncts of—I speak tremblingly and as one subject to correction—washing soda and a mysterious liquid which I have heard referred to as "blue?" I have; and I can only say it is a hard, and at the best an unsatisfactory job.

On the near side were the ladies' quarters and the guides' quarters. The centre of the camp was, of course, the dining tent, under whose spacious covering I have seen a hundred and twenty seated, and, like the famous cows of Wordsworth, "feeding like one," or like one o'clock, if the reader prefers the phrase. Beside it stood the kitchen, where the incomparable Jim Pong with his three Chinese *aides* performed miracles of cooking. The most popular of all our choruses was that which ended with a discordant and exultant yell of "Jim Pong, BEAT THE PAN"—his habitual method of summoning us to our meals. At table we each of us had one spoon, one fork, one knife, item, one tin cup; likewise one tin plate. It was a joy to me to see so many people who at home would be dreadfully fastidious, cheerfully and happily eating ALL their courses from the one plate. So long as one has hunger for sauce, and good digestion waits on appetite, what more does man want? Forenenst the dining tent were the camp offices where our Director and Secretary held sway. To the Secretary, ever genial and helpful, and to his assistant, Miss MacLeod, I would hereby on my own behalf, and I am sure, on behalf of all the members, tender our most grateful thanks for the patience with which they bore with all our whims, and the counsel and assistance which were never denied. In addition to these there was a tent with a vacant, comfortless air, which was labelled "PRESS TENT." What it was used for, when it was used, or who were the representatives of the Press, I was never able to find out. But the Press has its own mysteries, into which I do not desire to pry. A sense of profound gratitude impels me to mention the TEA TENT, where angelic beings in human guise ministered nectar and ambrosia to wearied mortals just returned from heroic and exhausting climbs. In passing, it may be noted that if there was any liquor stronger than tea in the camp, I never saw any signs of it.

Every evening, on the notice board, there were

generally half-a-dozen intimations of climbs and excursions. You put your name down for whatever you wished; if you felt lazy, you did not need to put down your name at all. But if your name was there, you were called at the proper time in the morning for breakfast before your climb. Our camp was pitched so high, and so near the foot of the glaciers, that no very early start was needed; and most of our climbing excursions were over in time for afternoon tea. If you wished a longer excursion, there was Mt. Habel, or at furthest, Mt. Balfour. Most of us were content with the nearer peaks, such as Mt. McArthur, or Isolated Peak, or the charming rock climb up Mt. Marpole. The graduating peak was Mt. President, which was fairly easy and pleasant, giving sufficient variety to interest and amuse every one who tried it. Every day from a dozen to twenty ascended this peak, and so became Active members of the Club.

After breakfast in the morning you got ready for climbing. The climbers were sorted into groups of four or five, and each group was provided with a guide who carried the rope. A word of fervent praise is due to the skilled amateurs who so willingly gave their services to those less experienced as guides. Gallant, cheery fellows they were, self-forgetful, helpful, thoughtful and kind. It is worthy of remark, in view of the fact that real dangers had to be encountered, that no accident took place, and no one was hurt in any way. Rumour told a terrible tale of three men who were walking on a glacier. The front man fell through the snow into a crevasse and dropped fifteen feet until the rope checked his fall. The second man was dragged to the very edge of the hole, but the third man succeeded in arresting the disaster. Thereafter the other two carefully extracted the unhappy first man. I know not if there be any truth in the tale; in any case it was only whispered below the breath, but never officially announced. As to the professional guides, they were a continual delight. Sometimes they got tired

with their unremitting labours, but they were always happy and ready. Oh, the joy of these climbs; and the thrill of the mountain summits, and the glory of the views! Foolish people who prefer the valleys know nothing of our ecstasies.

For the benefit of those who have never been to camp it should be added that the ladies were properly garbed for the work of climbing. There are moments when one's safety depends upon the free use of the limbs; at such moments the ridiculous hobble skirt of modern days, or even the ordinary clinging garments women wear, would lead to disaster; hence all the women climbers, when on the mountains, are dressed in male costume. They wear it, of course, with a touch of coquetry and grace; and yet no one who has lived in camp would ever regard such a dress as unbecoming or in the slightest degree immodest. One or two ladies I asked how they liked having so many pockets; they declared that it was delightful, but that they could never remember in which pocket the desired article was to be found.

There is one advantage of the camp upon which stress should be laid. To people of moderate means, who prefer a holiday in the open air, and who cannot afford the prices of the mountain hotels, the camp offers an opportunity of enjoying such a holiday at a very moderate expense. Lucky, indeed, are the young people of Calgary, of Edmonton and Vancouver, who live so near the mountains and have the chance of such a holiday; and grateful should they be to the railway company that carries them to it for half-fare.

The feature of the camp, which specially captivates a stranger, is the noble camp-fire, with its circle of logs. Every evening when the night fell, and the stars came out above us, we gathered round its cheery illumination. Some chairman was appointed, and everybody had to do what was in him or her for the entertainment of the

company. One sang a song, another told a yarn; another gave a recitation, a fourth would give an interesting lecture; and so the evening wore away and no one felt wearied. Never was any company so generously easy to be entertained, so appreciative of any effort to amuse it. Of these Noctes Ambrosianae I retain the most charming memories; I smile again at the extravaganzas of Mr. Foster; I admire the noble figure of our Dean, who pervaded the camp like a cheery benediction; I laugh again at the quaintly extravagant western humor of Jimmy Simpson, and once again that amazing artist Conrad Kain, whom New Zealand has taken from us, plays on my soul as on an instrument, and elicits music therefrom.

Nowhere in Canada have I met such delightful society as I found at the camp of the Alpine Club of Canada. Everybody was jolly, brotherly and care-free. There was no stiffness. We seemed to form just a happy family. No one talked of dollars or of real estate or of oil; here were men and women who could talk about books and art and the great and wide world. I enjoyed a real holiday of the body and of the soul, and carried back with me to the cities and haunts of men the freshness of the translucent mountain air, of great winds and far spaces; as well as a body more fitted to endure the toil and labour of daily life.

I set down here for the reader's amusement, if he will condescend to be amused by it, one of the skits which were recited at the camp-fire; it is entitled:

THE D'RECTOR AND THE SECRET'RY

1

The sun was shining on the snow,
Shining with all his might;
He did his very best to make
The snow-fields soft and white;
And this was odd, because, you know,
They froze up every night.

2

The moon was shining sulkily;
She saw that every one
Forgot her round the camp-fire
As soon as day was done.
"It's very rude of them," she said;
"I want to share the fun."

3

The D'rector and the Secret'ry
Were walking close near by;
They wept like anything to see
Such heaps of litter lie.
"If camp were only cleared," they said,
"It would be heavenly."

4

"If seven nigs with seven rakes
Raked it for half a year,
Do you suppose," the D'rector said,
"That they could get it clear?"
"I doubt it," said the Secret'ry;
And called for bitter beer.

5

"O, climbers, come and camp with us,"
The D'rector did beseech;
"We'll sort you into groups of four,
And give a rope to each."
And round the circle went the word:
"Ain't he the perfect peach?"

6

One of the climbers looked at him;
"No rope for me," he said;
And he pointed to his glasses,
And he gravely shook his head;
Meaning he would not risk our lives,
So chose to walk instead.

7

But four young people hurried up
All eager for a treat;
Their tents were brushed, their shoes were large,
And anything but neat;
And that was odd, because, you know,
They all had tiny feet.

8

Four other climbers followed them,
And yet another four;
And thick and fast they came at last
And more and more and more,
And called for tea and toast and jam,
Till Jim Pong nearly swore.

9

The D'rector and the Secret'ry
Walked on by the Yoho;
And then they sat upon a stump
Conveniently low;
And all the climbers humbly stood
And waited in a row.

10

"The time has come," the D'rector said,
"To talk of many things;
Of peaks and graduating climbs
And such like junketings;
And why the tea is boiling hot,
And whether Chinks have wings."

11

"But wait awhile," the greenhorns said,
"Before we have our chat;
For some of us are out of breath,
Yes, some of us are fat."
"No hurry," said the Secret'ry;
They thanked him much for that.

12

"A chunk of bread," the D'rector said,
"Is very good, indeed;
A bit of cheese and prunes beside,
Are all you really need.
Now, if you're ready, climbers dear,
You can begin to feed."

13

"You bet we will," said one and all,
And each one meant it too;
"And as we can't have silverplate,
Why, one of tin will do."
"The grub is fine," the D'rector said,
"Tuck in till all is blue."

14

"You've all been good," the D'rector said,
"You've clambered like Old Nick;
You've done yourself a treat, and made
The President look sick."
The Secret'ry said nothing, but
"Don't lay it on too thick."

15

"Good bye, good bye," the D'rector said,
With many tears and sighs;
"And when you're asked about your climbs,
Don't tell too many lies;
But shut your head, and then, of course,
You won't catch many flies."

16

"O, campers," said the Secret'ry,
"We've had a lovely time;
Be sure and come again next year,
And have another climb;
AND DON'T FORGET ON JAN. THE FIRST
TO PAY UP EVERY DIME."

There were some of us who had adventures, or, perhaps, misadventures would be the better term. There was the fishing party that went to the Amiskwi Valley, where one of the members was taken so ill that it took quite a while to bring him home. And there was the party of Edmonton girls, who, along with one young man, lost their way. They were out all night, and spent the dark hours in song and talk, till the morning brought the rescuers. I recall how willing the young men of the camp were to offer help in both cases.

But all good things come to an end. All unknown to us the clouds had been gathering in the sky; then, suddenly, the lightning flashed, and the roll of the thunder broke over the world. Almost before we could realise the fact, we knew that the nations of Europe were locked in deadly struggle, and that our beloved Canada was involved. The noise of these far alarums broke into our sheltered Paradise; we saw far off the fields of war,

"With dreadful faces thronged, and fiery arms."

The world was calling us back to our homes with the insistent clangour of the trumpet; and so, one by one, we packed our dunnage and took the trail back to Field.

It is our prayer that when the next times comes to camp again among the mountains, the storm will have cleared away, and given place to the clear sky and happy sunshine of an abiding peace.

SOUFFLÉ DES ALPES

By Charles H. Scott

Take six or seven good mountains, white crested; add a densely wooded valley, quite uninhabited except for a few million mosquitoes; place the lot in a remote spot some twenty miles from a railroad. Gather a band of about ten or twelve young men (green ones are the best, though Y.M.C.A. boys are not to be despised) strain their credulity by telling them of the joys of open-air life; add one slave driver of a boss, one cook, one bag of late-rising flour, several axes, a saw or two, and a plentiful supply of tobacco. The addition of a little bad language has been known to work wonders.

Place this miscellaneous collection of men in the aforesaid densely wooded valley, at the foot of the aforesaid mountains; peel off their coats, and put them up against a tree with an axe in their hands. Let them gently perspire nine hours per day for fourteen days; then lay aside to cool.

Now collect a large number of enthusiasts from different soils; sprinkle profusely with Alpine colours; let them freely commingle at the railroad; then place them on the twenty-mile trail with a blazing sun o'erhead. Prod them a little on the way to find out if tender. By the time the clearing, which is now called Camp, is reached, you may find some blistered skins and fewer enthusiasts, but this does not matter; there are generally enough to keep the pot a-boiling.

Shake them well with the hand; quench their thirst with a little tea, and keep them moving till darkness doth appear. Sort them out on a bed of moss and spruce boughs; add a few red ants for seasoning, and let them rest as well as can be under the circumstances. Get up

very early next morning, or before if you can; jog them all out of bed, and dip them in icy cold water. Lead them along to an oilcloth-covered board; stuff them with corn flakes, bacon and stewed prunes. Add a little condensed milk.

Stand them on their feet, sort them out in bundles, and call over their names. If they reply, you know they are conscious and realize that they are, indeed, in the soup. Let each bundle be composed of three males and three females. It is sometimes difficult to differentiate between male and female; indeed, mistakes have been known to occur, but a careful chef will generally look for the flask carried by the male. The females carry hairpins, chocolates and sometimes cigarettes.

Add one guide (male); the Swiss variety is considered best, though a touch of spice is added to the ascent if a female be chosen. Add a stout rope, a few jam sandwiches, three pounds of dried prunes, some ice-axes, and a "God-Bless-You." String the party loosely together and place the guide at the head. They are now ready for the ascent.

Lead them through some tough bush and ford the creek by crossing a narrow log. At this point it is advisable to dip every second one in the brook, the sudden and unexpected immersion doing much to cool those who are already overheated. Do not keep them too long in the valley, but gradually let them realize that they are ascending a mountain. This can be done in many ways, either by going over or under dead timber, by letting a hot flush appear on the cheek, by the loss of a hairpin on the part of the female or, best of all, by a shortness of breath generally more evident in the plump species.

They should simmer so for an hour or two, by which time *the guide* is generally tired; give them a piece of scenery to nibble at; let the males indulge in tobacco and stuff the females with a dried prune or some plain chocolate. Do not allow them to cool for more than ten

minutes, but keep them moving till the snow is reached. They are generally docile by now, and no difficulty is found in roping them together.

Hang one or two over a crevasse for, perhaps, thirty seconds. (Many people think the dish is improved thereby, and it certainly makes good food for talk later on.) Keep them going now for four or five hours, stopping every now and then either to moisten the overheated or again stuff with a dried prune. If a nice browning is desired, add a warm sun, though a shower of hail also gives variety at this period. When they are at boiling point you know the top has been reached. Handle them carefully, tightly squeeze them, and a cheer may be heard.

Relax the rope; let them gently subside on the ground and sprinkle with falling snow. Leave them for a few minutes until they become normal; then finally stuff with jam sandwiches, prunes, chocolates and cigarettes. Add a dash from the flask. Take their names from them and place inside a tomato can which is always to be found on the top of the best mountains.

Saturate them thoroughly with the views; flavour with a Swiss yodel; rope them up again and put them back into the pot for the descent. Coat the sides of the mountain so that a glissade is possible, bring them through a mile of shale; heat steadily for four hours, and serve up in Camp about 6 p.m.

Garnish the females with a hobble skirt and a few hairpins; put a cigar in the mouth of the males. Re-arrange them in groups according to liking; set them on a log in front of the fire and let them *lie* there for several hours. The older alpinists generally lie best. Add a little music till the stars come out and the moon grows pale. Put on the lid until the morrow, when the whole performance may have to be repeated for those not quite done.

THE CHALLENGE OF THE MOUNTAINS

(Air: "Men of Harlech")

By W. C. McNaught

Alpine men and Alpine women,
See the peaks above you gleaming,
From their tips the sunlight streaming
Flings the challenge far.
Don your boots and rucksacks,
Grasp the trusty iceaxe,
The snowy slopes shall know your ropes,
The rocks shall feel your impacts.
Upward! Heed the call that bids you
Tried and sure is he who heads you
Follow on where'er he leads you,
Upward to the skies.

Lo, around you spreads the glory,
Peaks and crags and summits hoary,
Would you read their ancient story?
He who climbs may read.
Toiling, sliding, creeping,
In the sunlight steeping,
Azure sky agleam on high,
And icy torrent leaping,
This the prize that waits your gaining,
Nature's store of treasure draining
Who'll deny it's worth the straining?
Let him stay below.

Down again triumphant, sliding,
Down the spotless snow slopes gliding,
Down to camp to bear the tiding,
Nature's battle won.
See the camp fire leaping,
Darkness o'er us creeping,
Song and jest to drown our quest
While stars their watch are keeping.
Here's the life that's worth the living,
Here's the victory worth achieving,
Here are memories worth the weaving,
Comrades, hear the call.

IN MEMORIAM

DR. TEMPEST ANDERSON

The small band of British climbers which came out to our Annual Camp, held at Lake O'Hara in 1909, is getting smaller. Edward Whymper and Dr. Benson have passed away and now we have to add the name of Dr. Tempest Anderson, who died in August, 1912. Those members who were fortunate enough to be present at that delightful gathering will remember Dr. Anderson's story at the camp-fire of his expedition to Mt. Pelée and his narrow escape from death in an eruption that occurred without warning. Some may remember that he had learned the old traveller's lesson, never to be separated from his baggage, and brought his hat-box the nine long miles on a pack pony into camp. It was probably the first appearance of a hat-box in the Rocky Mountains.

He was born in an ancient house in the ancient city of York, in 1846. Educated in his native city, he proceeded to the degree of Doctor of Medicine in the University of London. He made a special study of the eye, devoting himself to that branch of his profession.

It was however by his hobby, rather than by his business, that he became most widely known. He spent the free time of over twenty years in the exploration and comparison of volcanic regions from Iceland to the Philipines. His "Volcanic Studies" is familiar as a household word to all who take interest in volcanology.

He joined the Alpine Club of England in 1893, and though he preferred mountains of fire, he was interested in those of every kind. His scientific interests were general. He was a Fellow of the Royal Geographical, the Geological, and the Linnaean Societies. He held the office of Tyndall Lecturer on Volcanoes at the Royal Institution and was a constant visitor at the meetings of the British Association of which for a time he was Vice-President.

MRS. C. J. SPENCE

Quite recently word has reached us of the death, through a sad accident, of still another member of the band of British Alpine enthusiasts, organized by Prof. H. B. Dixon, who came out in 1909 as the guests of the Alpine Club of Canada.

Mrs. C. J. Spence, of Old Hall, Cheadle, Cheshire, England, was in every sense of the word an enthusiast where out-of-door life was concerned and took part with very keen zest in the programme prepared by the Alpine Club for its visitors. The party of which she was a member was among the first to enjoy the pleasures of the new Alpine Club House at Banff, only completed in time to receive these British guests. She was next at the Annual Camp of the Club at Lake O'Hara, and at its close took part in the celebrated

six-day trip around the Yoho Valley, of which a large portion of the route lay above the timber-line. At the end of this expedition she went with Professor Dixon's party to attend the meeting of the British Association at Winnipeg.

Mrs. Spence has always been a strong supporter of the Alpine Club of Canada and it is with the deepest sorrow we record her untimely death.

GEORGE THOMAS AMPHLETT

We regret to record the death from malignant malaria in February, 1914, of Mr. G. T. Amphlett, at Salisbury, South Africa, who joined the Alpine Club of Canada in 1907. He had intended to be with us in 1911, but was prevented coming at the last moment. He had long wished to see the Rockies, but Fate said no.

He was elected a member of the Alpine Club of England in 1911 and was also a member of the Fell and Rock Climbing Club. He was one of the foundation members of the Mountain Club of South Africa, becoming Vice-President and President in due course. He was a most enthusiastic member and did much to help that club.

He was educated in England at King's College School, London, and went to South Africa in 1881, entering the service of the Standard Bank of South Africa. To him in later years was largely due the foundation of the Institute of Bankers in South Africa, of which he was the first Chairman.

Among other peaks in the Alps, he had climbed the Mönch, Finsteraarhorn, and Monte Rosa. He had also climbed in the Dolomites and the Pyrenees.

We extend our sympathy to Mrs. Amphlett, another of our members, whom also we had hoped to see in 1911.

SIR WILLIAM WHYTE

An Appreciation

To the first issue of this Journal eight years ago, Sir William Whyte contributed a word of greeting which was given the place of precedence. He had warmly seconded the efforts to organize a Canadian Alpine Club: first, by giving railway passes from anywhere in Canada to a number of delegates to travel to Winnipeg where the Club first took tangible shape; second, by becoming himself an Associate member. In his "Greetings," Mr. Whyte (as he then was) strongly urged all young Canadians who could, to attend the Club's camps and to "learn to climb their own mountains," learn to appreciate the mountain beauty of their own country. He believed in the new club as he believed in the Rocky Mountains. It was the very best institution possible for making them known to Canada herself and to the rest of the world. "I am confident," he said, "that they will not be found second (to any great range) in the regard of all lovers of mountains and of mountain climbing." He considered the summer camp an efficient and effective school of mountaineering; and during the experimental and following years the Company's Swiss guides were placed at the dis-

posal of the Club; and other benefits of a practical sort were granted that helped to strengthen its stakes if not to lengthen its cords. When in 1911 he won his well earned knighthood, the Alpine Club of Canada hastened to congratulate him; and in his acknowledgement Sir William said that the congratulations which came so heartily were the real pleasure of the honour.

Sir William Whyte was born in September 15, 1843, in Charlestown, a village on the Firth of Forth in the Kingdom of Fife. His first employment was in the office of Lord Elgin's Agent; his second, in Nethertown station on the Charlestown-Dunfermline Railway. And there began his railway career of half-a-century. In 1863 he came out to Canada and shortly secured a situation as brakeman in the Grand Trunk Railway at Cobourg. Long after he had attained distinction among railway magnates, Sir William was shown his biography-in-little in a certain "Who's Who." He read attentively until he came to "accepted position at Cobourg, Ontario, with the Grand Trunk Railway," and he then laid it down. Running one hand through "his thick, white hair," he repeated, with the delicious burr in his voice and amusement in his eyes, "Accepted position! Those are not exactly the words. . . . When I roped and threw that job of freight handler in Cobourg, I was one of the most thankful lads in Canada. Accepted! Now, I *had* to have that job!"

By scrupulous attention to railway business and to every relevant responsibility, this man rose steadily from position to position. When nineteen years had passed, he was Divisional Superintendent for the Grand Trunk Company at Toronto. From 1882 until 1884 he was Superintendent of the Credit Valley Railway, when he joined the C.P.R. as General Superintendent of the Ontario Division, the whole Eastern Division being added to his constituency the next year. In 1886 he came to Winnipeg as Superintendent of the Western Division, and in 1897 was made manager of all C.P.R. lines West of Lake Superior; in 1901 he became Assistant to the President and made a journey, via the Trans-Siberian Railway, round the world; and in 1904 was appointed second Vice-President. In 1911 he was knighted by King George and in a few months retired with a Directorship. It is well known that the knighthood was bestowed in recognition of his all-round activities as an outstanding citizen of the West.

We are told that the Western appointment in 1886 involved such versatile activities as contractor and builder, engineer, farmer and farm instructor, colonizer and immigration agent. Whether these manifold duties were voluntary or "nominated in the bond" is not recorded, nor the salary attached which, were it large or small, was many times earned. I have no space to tell of these things, but it is a strenuous and honourable record which leaves no doubt that the fifty years of toil wore him out. Retiring at sixty-eight, Sir William Whyte might have been expected to live to a serene old age.

As briefly as possible let us take an incident occurring shortly after his removal to the West, which shows the typical Scot in him. At a point near Winnipeg, on the C.P.R. road running south, a provincial railway attempted to force a crossing. Holding the right-of-way by Dominion charter, Mr. Whyte refused permission,

but wrote to Sir William Van Horne that public opinion in both city and country was against them and that if they stood for their rights unpopularity was sure to follow. "Must not cross our road," said the President. "The people are determined to have it," replied the Superintendnt. "Whyte, I thought I could depend upon you to carry out any order, no matter how difficult." Suiting his action to the orders, Mr. Whyte blocked the way with a couple of engines, and with fifty volunteers went out to enforce them. Leading citizens, members of the legislature and a large crowd arrived on the scene. Mr. Whyte invited the Provincial Treasurer, who was also the Mayor, into his private car. "I sat on the bed and said: 'You are not only Provincial Treasurer, but the chief magistrate of Winnipeg. Yet you are not here to preserve law and order but to lead a rabble. Whatever happens . . . . will not be upon my head but upon yours. If there is any bloodshed you are responsible.'" The crowd of citizens with the special constables returned to the city in "an angry mood," leaving the superintendent victorious. He secured troops to watch the right-of-way and fighting was averted. And in the end the Company settled for the crossing which is known to this day as Fort Whyte.

His policy with the settlers included a cheap midwinter trip to the old homes in the East which not only heartened the settlers but proved a free advertising scheme. To every matter pertaining to settlement in the new rich land, were it seed, wheat, coal, irrigation or what not, Sir William gave himself unsparingly. Perhaps no man did so much to promote, in the end of the day, traffic for the railway. He built many tributary lines and kept his finger on the pulse of the machine—if one may apply a Wordsworthian phrase to a mighty commercial corporation.

Less than three years after his well-earned leisure began, Sir William Whyte died at Coronado Beach, California. For some months he had been confined to bed with a painful and incurable malady. His death called forth many tributes, near and far, to his powers of administration and of incessant work, and to his sterling character. He was a close worker with unusual powers of concentration, and he had the seeing eye. Apart from the utilitarian gifts necessary to success in great commercial and national enterprises, his was a large intelligence, a good mind. He was connected with various commercial companies and was a working friend in the college, the Church and in organizations of social service. They found his advice useful as from a man of ripe experience and sane judgment. In a very practical sense, Sir William Whyte was one of the Makers of the Canadian West. Of the fifty years of toil in railway service, twenty-five were spent there. And they were the heaviest years. We could have wished that he had been spared to his family and friends for many years, enjoying the leisure of age and keeping alive his old interest in the larger movements of life; that he had grown old.

"The best is yet to be,
The last of life for which the first was made."

ELIZABETH PARKER.

WALTER SCHAUFFELBERGER

During the month of March, 1914, word reached me of the death of Walter Schauffelberger, chartered alpine guide of Zurich, Switzerland. He lost his life on a Bernina ski-tour. We have no details of the accident, the mere fact alone having been stated in a letter from Dr. Stauffacher, of Zurich, who wrote asking for Schauffelberger's Canadian record.

Walter first came to the Canadian Rockies in 1913 with the hope of securing employment as guide from the Canadian Pacific Railway at one of its summer hotels. Not finding an opening, he applied to the Alpine Club for employment, and was utilized at the Cathedral Mt. Camp and at the Mt. Robson Camp in 1913. His name appears frequently in these pages and one article, entitled "Whitehorn," was written by him. He was exceedingly keen on making an ascent of Mt. Robson by the west arête and tremendously disappointed at being unsuccessful, when with Darling and Prouty he had to turn back on account of storm conditions, though within 600 feet of the summit. An account of the attempt, written by Mr. Darling, will also be found in this Journal.

In 1914, he was again employed by the Alpine Club; first at the Club House at Banff, and then at the Upper Yoho Camp. When the Camp was over, he was with me on the survey of the boundary between the Provinces of British Columbia and Alberta, which lies along the watershed of the main range of the Rockies. At the close of the survey in October, he returned to his home in Switzerland.

Schauffelberger was a big powerful man, good-tempered, like most big men, and obliging. He had a limited command of the English language, which was greatly improved by his sojourn in Canada. While somewhat clumsy in action, he was a safe and strong climber; and, speaking personally, I am greatly indebted to him for many kindnesses and much careful attention. I had got to know him and hoped that he would be with the Club again in 1915.

He was liked and respected in his own community, and his many friends in Canada will learn of his death with sincere regret.

ARTHUR O. WHEELER.

ALPINE CLUB NOTES

An Ascent of Mt. Huber by a New Route

The ascent of Huber, from Lake O'Hara by way of the saddle between Wiwaxy and Huber, then across the benches at the westerly base of the mountain, up the Victoria Glacier, and then to the summit, over the snow on the north side, has been frequently made and rates as an easy climb. Only one ascent of the mountain was made from Cathedral Camp in 1913. A party of eight, including the guide Schauffelberger, spent the night at the temporary O'Hara camp and made the ascent on July 24th by a new route up the westerly face. This was a typical rock climb. No snow or ice was encountered save in patches. The old route was followed nearly to the crest of the westerly arête. From this point the party worked straight up over a series of rocky benches, alternately encountering chimneys and open rock slopes. The ropes were in constant use and the passage of several difficult chimneys required sending up the party individually. Falling stones were a constant menace, one of the climbers receiving a dangerous blow and the others narrowly escaping. The summit was reached at one o'clock. The descent by the north slope to the glacier required two and one-half hours of step-cutting, the whole slope being covered with ice. By this route and under the conditions, Huber is an interesting climb, affording a great variety of mountaineering. Indeed, this route is suitable only for experienced climbers.

W. E. Stone.

A "Little" First Ascent

On the last day of the Robson Camp (August 9th, 1913), a party of four ladies and two men, including Walter Schauffelberger, the guide, explored the little peak immediately south of Mumm Peak and a part of the same range. This peak is the end of a long, narrow ridge beginning just above the beautiful alp so often visited from camp and extending straight up the slope of the mountain. The rock formation is peculiar; the slaty strata are slightly inclined toward the east. The ridge has been sharply eroded on each side, forming two valleys separated by perpendicular cliffs of some height. At two places the line of the ridge has been broken down, giving a serrated appearance as seen from the north, as for instance from the summit of Mumm Peak.

The peak itself is a nearly level, flat-topped rock of mesa-like formation, a few yards in diameter, and accessible only by surmounting the almost perpendicular walls which surround it on all sides. A rocky ledge hugs the north cliffs closely for the entire length of the ridge and might be a feasible route to the summit, although probably much exposed to falling stones. The climbing party chose to ascend by the valley on the north of the ridge, keeping on the snow and only toward the last making use of the

ledge above described. Up to this point it was easy climbing, but the last hundred feet was first class rock and chimney work.

There was no evidence on the summit of any previous visitors. A cairn was built, in which a record of names was placed. The aneroid indicated an elevation of 9,450 feet and, by rough comparison with Mumm Peak, this is probably a fair estimate. The view is quite as extensive as that from Mumm, with the exception, possibly, that the Smoky River Valley is obscured. The aspect of Mumm Peak itself from this point resembled a sharp tooth, totally different from the view from Camp. On the snow peak to the southwest could be seen the party under Messrs. Mumm and Inderbinen also making a "little" first ascent.

The descent into the valley on the south side of the ridge involved two exciting chimneys and a long scramble over the scree talus under the high cliffs. This valley debouches opposite Berg Lake and affords a magnificent view of Robson, the Helmet, and Resplendent with the Tumbling Glacier in the foreground. This view, which is unique in some respects, was well worth all the effort of the day.

W. E. Stone.

Mr. F. W. Godsal calls attention to two interesting climbs in the neighbourhood of Pincher Creek, Mt. Victoria and Castle Mt.* These must not be confused with the other mountains of the same name near the main line of the C.P.R. Though neither mountain attains the elevation of 8500 feet, climbing begins almost at prairie level. The most interesting point of ascent for either mountain is from a camp placed on Mill Creek. Victoria commands a superb view, on the west a wild sea of mountains, on the east a calm ocean of prairie, dotted with lakes and the habitations of man.

Castle Mountain affords a fine rock climb. The southeast peak is the higher, but the northwest peak, perched like a citadel on the edge of a precipice, is but little lower. Extending north is a remarkable wall of rock with precipitous sides, about a thousand feet high at one end, about a mile in length, but only a hundred feet or so in thickness. The streams in the vicinity abound in fish; and deer, bear, sheep and goat are not uncommon. Crowsnest Mt. and Gould's Dome are not far off; both are worthy the attention of the rock climber. Altogether it is an interesting neighbourhood.

Those who possess the Special Number of the Journal for 1912 will be interested to know that the name of the marmot mentioned on page 28 of that volume has been changed from "*Marmota sibila* Hollister" to "*Marmota oxytona* Hollister." The epithet *sibila* is pre-occupied by the "*Arctomys sibila* Wolf."

Mr. J. R. Young, a member of the Scottish Mountaineering Club, whose interesting article on his climb of Findhorn and Tomatin Pk. (Mt. McBean) appears earlier in this Journal, had a most varied

*By a decision of the Geographic Board of Canada the name has been changed to "Turret Mt.," owing to a strikingly peculiar formation of rock at its highest eastern point.—Ed.

climbing experience for his first visit to the Canadian Rockies. The programme is worth printing as a hint to future travellers:

From Lake Louise Chalet: The Mitre; Mt. Victoria, main peak; Mt. Victoria, north peak.

From camp in Prospector's Valley: Mts. Hungabee and Deltaform.

From Glacier House: Uto Peak, traverse from Sir Donald Col; Mt. Sir Donald, traverse.

From Hermit Hut: Mt. Tupper; Rogers, Fleming and Grant Peaks, traverses; Swiss Peak.

From Glacier House: Traverse Asulkan Pass with Camp equipment.

From camp on Van Horne Creek: Tomatin and Findhorn Peaks, traverses and first ascents.

As all these ascents were made in a period of under three weeks, it is evident Mr. Young was singularly favoured by the weather. He found kletterschuhe of great advantage.

Mr. E. W. Harnden, whose interesting article appears elsewhere in this issue, again visited the Upper Columbia Valley in the summer of 1914. In a letter received from him, he says: "We took a pack train and spent something over two weeks in the Horse Thief country. There, I ran down and conquered what I am very sure is the Eyebrow Peak, mentioned in the Canadian Alpine Journal for 1911 (page 36). It is a splendid peak, standing out by itself from huge watersheds, snow-fields and glaciers, which fall away from it on every side, affording the most magnificent mountain-top view I have seen. It lay between you and Jumbo as you stood at Bugaboo Creek, blanketing the latter, which is much huger in bulk and only slightly less in altitude. The three peaks, Eyebrow, Jumbo and Farnham form a triangle, and their approximate relative heights are: Eyebrow, 11,250; Jumbo, 11,190 and Farnham, 11,120."

In the summer of 1914, Professors Holway and Butters, together with Dr. A. J. Gilmour, again passed some time in the Selkirks. After camping at the Beaver Glacier and making some expeditions thence, they went down the Duncan valley and up the first valley at the back of the Battle Range. There are no trails, and those who know what the Selkirk bush is like will appreciate the toilsomeness of their journey. Near the end of the valley an ascent of some 1200 feet, by some very fine cascade falls, brought them into a magnificent hanging valley, at the head of which is a lake as large as Lake Louise and of similar shape. A big glacier comes to within thirty feet of it, and at its head is the great peak, some 10,500 feet in elevation, which marks the bend of Battle Creek. The ascent of this peak was made, involving an all-night vigil. Over the glacier is a pass into the Battle Valley. Professor Holway says it is a glorious region.

Mr. Le Roy Jeffers, of New York, writes of his various climbs in 1914. These included San Jacinto in California, an attempt on Mt.

Ranier, balked by a storm, Sir Donald, and various climbs from the Alpine Club camp. While on the summit of Mt. Balfour the party, under the guidance of Conrad Kain, was attacked by an electric storm. The account is of interest.

"The flash made directly for Conrad, but its force was divided by the ice axes of the party, several of whom were bowled over. They afterwards described the sensation as that of being hit by golf balls. Although Conrad was thrown down, he was able to shout: 'Throw away your ice axes and run for your lives.' We didn't argue the point. Down an unknown snow arête to overhanging rocks we fled. There we cheerfully regained our composure while we waited for the storm to pass.

"Although I have occasionally experienced electrical conditions on California peaks in which the rocks sang or the uplifted fingers crackled, I had not seen the ffect of lightning at so short a distance. We all remarked on the fact of not being conscious of the thunder until we actually started to leave the spot; but I suppose that we did not linger in making our decision. Some one suggested that we had been shown unusual consideration from the fact of there being five ministers in our party. I was quite in sympathy with their work, but not prepared for their baptism by fire."

REVIEWS

Peaks and Precipices—Guido Rey

Some years ago a young climber at the Club House fell thrall to Guido Rey's "The Matterhorn," thrall to the book and, through the book, to the mountain. When he had turned the last page and lingered over the last paragraph, he said: "I am going to order this book and I am going to climb that mountain!" Climbers everywhere were charmed with Guido Rey's descriptive narrative. It had a warmth and depth of emotion not found in Whymper's famous classic. And what a noble and precious appreciation it held of the conqueror of the long-defiant peak. Guido Rey won the heart of every mountain lover who read "The Matterhorn." And now there comes to us from his pen another and even better book, "Peaks and Precipices," translated into English by Mr. J. E. C. Eaton, an English member of our Canadian Club. Mr. Eaton spent one season in the Rockies climbing in the Freshfield Group.

We are debtors to him for giving us in our own tongue a book which will go on the growing Alpine shelf close to "The Playground of Europe" and A. F. Mummery's "Climbs in the Alps and Caucasus." (You can buy Mummery's book now for a shilling in Nelson's library, and Whymper's books also.) The edition before me is the American one, bearing the imprint of Dodd, Mead and Company (price $3.50); the English publisher is T. Fisher Unwin (price 10/6). The only fault I have to find is in its size and weight. I should like it in a smaller, lighter edition, printed on Oxford or other thin paper. Because it is a book to read in bed, or in an easy chair, a book to be read over and over again. Forty years on, it will be to the old climber as an alpine bible. The first part describes the author's experiences on the Aiguilles rising out of the ice of the Mont Blanc Range: the Grépon, the Dent du Requin, the Petit Dru, the Aiguille Verte, the "base camp" as we would say in the Rockies being the hotel on the Montanvert. The last and larger part is devoted to climbs in the Dolomites. Over seventy plates from photographs such as climbers love to study, illustrate the text.

Before attacking the Grépon, Signor Rey read once more the tale of its conquest by its conqueror, the incomparable Mummery. He took his own Italian guides and also an eager youth whose father, Edmondo De Amicis, had said, "When my boy is with you, I feel no anxiety!" The party had a strenuous and dangerous though unspeakably happy week of it, beginning with Mummery's "most difficult climb in the Alps," following his route up the vertical chimneys and precipices, notably that narrow chimney named Mummery's Crack. It is extremely interesting and profitable to read the two narratives side by side, and every member of this Club who owns Mummery's book will not rest until Guido Rey's is theirs also. For the sake of the army of sincere and earnest climbers throughout our Empire alone, I hope that it may soon go into some cheaper edition. For mountaineering is no longer the pastime and the passion only of choice spirits among the rich and the well-to-do.

Nor is the democratization of the hardiest and sublimest of all sports to be deplored; rather is it to be encouraged, especially in Canada where the alpine field is so vast and where there are many large tracts still untouched by the climber.

If I had two or three pages of space I should give a summary of some thrilling climbs described in this fascinating book. My notes would fill a dozen pages and more. Guido Rey is a safe guide for any reader. He is an apostle and disciple of the mountains in one; and yet his word is to "climb carefully," to have the courage to turn back short of the summit, rather than court disaster, coming another day with increased skill and turning defeat into victory. In recounting ascents and bivouacs and descents, he gives the reader not only the tangible details and lovely descriptions of mountain architecture and landscape, of sunset, starlight and sunrise, but also the psychology of the expedition, its expectations, its physical and spiritual joys, its terrors and exaltations. The record is confidential—a *journal intime*, and its charm is the charm which Pater says goes into the making of all classics. To Guido Rey there is a religion of the mountains, and his heart remembers. The "Lady of the Hills" has been kind to him, there is no memory of "Natura Maligna." Here are his own words: "The old climber who has 'breathed in that fine air' and scanned the horizon from the mountains, has ever before his eyes the imperishable light of memory, and in his heart the joyous thrill of happy, vigorous hours. And when, in his peaceful old age, his thoughts revert to the mountains, he feels his heart beating fast, as after a long race. . . ."

In every one of these chapters this true mountaineer brings the mountains to you, and you make his perspective your own. Had you never seen a mountain he would make you love and fear them, make you respect the art and science of mountaineering as a physical and spiritual exercise. And yet he never ignores the realistic side of it. "When we were seated at table (in the hut), we all four looked each other in the face. And how hideous and swollen and weary were those faces! My glance fell upon my hands. On them was written the whole history of the preceding days. I could retrace each expedition by the colouring of the wounds. . . ." The faces of his companions in the candle's flickering light were drawn with fatigue—"their eyes were blood-shot and seemed to be half blinded by the snow and sun; but their faces bore an almost ecstatic expression." We have often seen such faces in the mountains, but we have missed the ecstatic expression. Was that expression wholly of this devoted disciple's spiritual imagination, or have our eyes been hidden?

"Peaks and Precipices" is a book to which we shall turn again and again. Above any other in all the noble literature inspired by mountain craft, it is a devotional book of mountaineering. Guido Rey will be a star forever to young climbers.

ELIZABETH PARKER.

Kulu and Lahoul—Lieut.-Colonel, The Hon. C. G. Bruce

The literature of mountaineering has, in these late years, grown to such proportions that a young climber who wishes to fill a "five-foot shelf" with the best books on the subject, must spend

his money with discretion. The mountaineering classics he must have, and their names are known wherever men climb mountains. And while it is true that most books dealing with climbs and explorations in mountain regions are excellent, while it is true that the rest have some value, the making of many books on these interesting themes compels one to pick and choose if he would have only the very best on the shelf.

Among those published last year is "Kulu and Lahoul" (Mr. Edward Arnold, publisher), an account of seven month's wandering and climbing among Himalayan valleys and mountains hitherto unknown to the world of climbers. The author, Lieut.-Colonel, the Hon. C. G. Bruce, M.V.O., Sixth Gurkha Rifles, wrote a book a few years ago entitled "Twenty Years in the Himalaya," describing climbs with Sir Martin Conway, Mr. A. F. Mummery, Dr. T. G. Longstaff, and Mr. A. L. Mumm, names well known to the Alpine Club of Canada. Being a British soldier and a mountaineer, Col. Bruce is a forthright man who will stand no flowery, sentimental nonsense in life or in letters. While the army is his serious vocation, exploring and climbing and writing about it all are his jolly avocation. His conversational style wins you at once, and you read with confidence in the writer and his story which is packed with information concerning the new mountain country. For this reason itself the book deserves a place in the high company of the great alpine books that we cannot do without. There are other reasons also.

The expedition into Kulu and Lahoul, which are two distinct regions (separated by the river Chandra) near the borders of Tibet, north of Simla and lying between Garwhal and Kashmir, was straight play, no "loathly considerations of science" being permitted to mar the enjoyment. I said Simla, simply because that place and its position in the Panjab are so well known. A couple of maps at the end of the book help to fix the situation of both provinces, if one may name them so, in the great Himalayan range.

The especial charm of this holiday was that of wandering through new and beautiful valleys and climbing only as the spirit was moved. There was no set purpose of conquest with a "terror of a" 25,000 footer always "at the back of my mind." Col. Bruce proposed to take his wife, who contributes a charming chapter to the book, a good Swiss guide and the necessary entourage, and go a holidaying in the Himalaya. And he had his way except for a trifle of disobedience to the gods of that country who repaid him with a dislocated shoulder and torn muscles. But he was a good "healer" and as good a sport, practically scorning the gods as the captain in Beaumont and Fletcher's "Sea Voyage" disdained that agreeable person who reminded him of her power to hang him and all his company: "'Tis in our powers, then, to be hanged and scorn ye." Col. Bruce's expedition "climbed and climbed for three months on end," despite the leader being *hors de combat* for a time. Were there space I should like to quote the pithy description of the accident, and of how philosophically the victim set himself to make an excellent best of it. It occurred in one of the Kulu valleys when some interesting climbing was in prospect. Fuhrer and Lalbahadur and various porters were sent off on the enterprise while the invalid remained behind. "Now this was an adventurous step as neither (the Swiss nor the Indian) could communicate with the other except

by signs. But Fuhrer was keen to explore and he must be back in Switzerland long before Col. Bruce's holiday would be ended. A warm tribute is paid to him for the work achieved by the expedition, its "mountaineering success" being almost entirely due to him. He seems to have been a guide of infinite and amiable patience tempered with nice and felicitous sarcasm: "A little early in the season I think Major Bruce?" (He was but a Major in 1912). "Why don't you step more lightly?" he asked, when his patron was floundering up to the middle in a soft snowfield. "How I did yearn for a good cuss word." But the polite Fuhrer simply would not swear.

The valleys of both Kulu and Lahoul had the additional interest of the human element, native villages and shepherds and traders. Mountains and valleys in nearly all the plates have the Himalayan appearance. I have never seen anything like the Himalayan pictures in the Rockies, unless it be in a scene towards the Pacific near the Grand Trunk line, and then only in a photograph coloured by a lady who saw the icy range. I hope that this Himalayan mountaineer may one day spend a furlough in the Rockies, exploring new peaks and ranges and passes in the way he likes best, both desultory and strenuous. He would make a fascinating story out of it, and he would get the big game which he loves to shoot, bears and bighorn and goat and elk.

The Solang Valley in Kulu with three Swiss-looking peaks fills a chapter, and good Swiss names were given to them: Solang Weisshorn, S. Blaitière and S. Charmoz. Further north in Lahoul a splendid mountain was named Todd's Giant for a fellow-officer who went up into the hills later, as soon as his leave began. It was at first their "unnamed peak, just one of a great herd of unnamed peaks of 20,000 feet in the Himalayan System." The Geographical Survey marked it on the Government map as "Snowy Peak," but in Col. Bruce's map it bears the name of the captain who climbed it with Fuhrer. "While Todd was tackling his giant, I and the Gurkhas went for a scramble on our own account," the scramble including "a little peak which perhaps attained a height of 18,500 feet. We had a very pleasant scramble and a good view of our way. . . . I was also able, with the help of the men, to do a little rock scrambling, and was much cheered at this sign of returning strength in my most important arm."

Captain Todd contributes a chapter on the history and folklore of the Kulu people, and the last chapter is entitled "From a Lady's Point of View." There is plenty of virgin country for the mountaineer left in both Kulu and Lahoul, and beyond is a fascinating region or two which Col. Bruce hopes to travel another season.

This is decidedly a book for those who read the Canadian Alpine Journal. When I get into the heart of a mountaineering book written by an enthusiast, I understand those climbers who climb every summer and spend so much spare time in winter studying maps and making plans for the next holiday. It is one of the noblest sporting enthusiasms which can possess a man. And I am always mindful of what the Alpine Club of Canada has done to inspire and to nourish that enthusiasm in our young nation. Mountaineering is the sport *par excellence* for soldiers. Mr. L. S. Amery wrote an article on the subject in "The Times" some years ago.

ELIZABETH PARKER.

A Climber in New Zealand—Malcolm Ross

The next book on the shelf, "A Climber in New Zealand," makes perhaps a stronger appeal to members of the A.C.C., seeing that our guide, Conrad Kain, won golden opinions in the New Zealand Alps two years ago, and has since been there training native guides. This book was written before the awful catastrophe on Mt. Cook, when Conrad made the record both in climbing and in rescue work, resulting in his engagement by the New Zealand Government. In it reference is made to the striking record of climbing in the range: every highest peak had been conquered, ladies had climbed Mt. Cook, and there had never been an accident. "But what of the future?" adds the author.

A second reason for our special interest is that Mr. W. Spotswood Green, who first explored and mapped the Selkirk glaciers, was the pioneer on Mt. Cook in 1882, and nearly reached its summit when to reach the mountain itself was a long and difficult expedition. The author, Mr. Malcolm Ross, is worthy to wear Mr. Green's mantle, both as mountaineer and writer. Certainly he looks up to that genuine alpine missionary with all the devotion of a disciple. Mr. Green's books on the Selkirks and on the New Zealand Alps are now classics, and he is an Honorary member of the New Zealand and Canadian Clubs. When Mr. Ross began climbing, Mr. Green sent him an ice-axe and an article on the death-roll of the Alps! All very appropriate for an amateur "anxious to learn the craft in a Far Country. I still have the axe—a treasured possession—but I have long ago lost the article!"

Once more, quite apart from its valuable chronicles of exploration in the little known Alps destined to become the playground of the peoples living under the Southern Cross, there is another bond in this book, namely an introduction by Viscount Bryce who is also an honorary member of the Canadian Club.

Mr. Ross would fain restore to Mt. Cook its aboriginal name Aorangi; and in the four fascinating chapters dealing with its conquest, this is the name he uses. I should think that a word to the geographical powers in the Government would do the business.

The mountain had been climbed by four routes when Mr. Ross wrote; and it had been traversed from east to west over the summit and along the ridge from south to north. The first complete ascent was made by young New Zealanders who had never even seen a professional guide climbing. And this was after many plucky and patient attempts and failures in the years between Green's attempt in 1882 and the triumph of 1894. Mr. Ross was one of the party which attacked the mountain in that successful year, but the weather and the ending of his holiday together cheated him of the final reach. The other three, Messrs. Graham, Fyfe and Clarke, put the summit of Aorangi under their feet on Christmas Day and so exultingly stood upon "the highest pinnacle of the monarch of the Southern Alps." Its height is given as 12,347 feet, the climbing beginning not far above sea level; its glaciers push down into the forest as far as 400 feet above the sea. There are other monarchs in the New Zealand system heavily weighted with ice, but Aorangi towers nearly 900 feet above the highest of them.

Mr. Ross, with Messrs. Graham and Fyfe, had his reward in the

first traverse over the summit from east to west; and his exploits on this and on other mountains will hold their own for daring and peril and endurance with any mountaineering that has yet gone into literature. And he is a good craftsman, whether the instrument in his hand be an ice-axe or a pen. His writing has the literary flavour. "A Climber in New Zealand" ought to have as wide a circulation under the Great Bear as under the Southern Cross, where it will do very much to hasten the day when the New Zealand Alps will become the playground of the South Pacific nations. The author, by the way, loves the starry heavens of the southern hemisphere as he loves the mountains there and all who climb them. He is of the true brotherhood of climbers.

ELIZABETH PARKER.

Mountaineering and Explorations in the Selkirks—Howard Palmer

This also is a book that will be read frequently by climbers, but for practical reasons. For, it is a book of the highest utility, packed with information, and it represents the enthusiastic and arduous work of five summers among the forests and waterways and glaciers of the Selkirks. Its special value in the literature of the Canadian mountains is the knowledge it brings to us of that else unknown alpine country within the Big Bend of the Columbia, dominated by Mount Sir Sandford. Mr. Palmer is a keen climber and explorer; he has the necessary quality of "derring-do" but tempered and strengthened with a bull-dog tenacity; he has enough geology and other science germane to mountain adventure to give him the standing of an expert explorer; and last, but not least, he has a good, vigorous style to suit narration of that kind.

"Mountaineering in the Selkirks" is a mountaineer's book, and no higher praise could be given it. The illustrations alone, which run into some hundreds, are an education concerning that world of ice in the Northern Selkirks. There are maps and several appendices all full of important matter; and every chapter is full of interest. It is a worthy successor to Mr. Wheeler's informing "Selkirk Range" which opened the eyes of the world to what this snowy range offered mountaineers eager for new peaks to conquer.

It would be a mistake for any climber to go into the region north of the railway without reading and making his own at least a part of Mr. Palmer's book, written as it is out of his own experiences. Besides the regular mountain travel during five summers, Mr. Palmer climbed over thirty-five of the highest peaks in the Selkirks, fifteen of them being first ascents, and all save six being guideless climbs, as the term is. Four expeditions were made to Sir Sandford and various difficult peaks and passes conquered in the vicinity before that mountain yielded. On June 24th, 1912, Mr. Palmer and Professor Holway, with guides Edouard Feuz and Rudolph Aemmer, stood on the ice-cap which crowns the summit. Rudolph, who was leading, said "Here is the top." There was no solemn ritual of handshaking such as would occur at the moment of triumph on many a mountain. For the "snowy crest" extended in a cornice a rod or more above and beyond them. "There was neither time nor space for lining up so that some one might venture on the extreme apex in safety." There was no rock, no place to sit down, and the four were as near to the overhang of ice and snow

as it was safe to go. "We simply turned in our tracks and started back." At the first patch of rocks a small cairn was built.

I wonder if these two intrepid climbers had been able to reach the summit in this last attempt without Swiss guides. Many things were in their favour: The trail to the base of the mountain had been made and was familiar going; the mountain itself had been reconnoitered and exploited by various upward routes; it was early in the season and they had the summer before them. Whether they had achieved it without guides or not it was surely the better part of wisdom to employ them. The narrative and illustrating plates show it to have been a difficult and dangerous ascent. In the course of years, when climbers in the Selkirks shall have increased a hundred fold, and many well-built trails run into the ranges roundabout, Sir Sandford will doubtless be climbed every season by various routes. But it will still be counted a difficult climb, and never, no never, "an easy day for a lady."

The eleven chapters of Part III are taken up with the Sir Sandford country; Part II deals with the world of ice between the Hermit Range and the mountains at the source of the Beaver River; Part I gives the geography and history of the whole Selkirk Range in outline. Mr. Palmer's book, written like all mountaineering books, *con amore*, will find a welcome place in the literature of the Canadian Mountains.

ELIZABETH PARKER.

The Conquest of Mt. Cook—Freda Du Faur

This book of New Zealand climbs by a member of our own Club has arrived just as we go to press, too late to be satisfactorily reviewed. The book is well worth possessing, and members can with pleasure review it for themselves. While it is the work of a young climber, it has the inspiration of high hopes founded on assured successes in the past.

The narrative of the first complete traverse of Mt. Cook is enthralling. It is evidently only an expedition for the truly efficient mountaineer. Miss Du Faur, an Australian, has had all her training in New Zealand under the well known guides, the Graham brothers. She pleads for the revival of the New Zealand Alpine Club. Since the book was written we are glad to hear that it has again wakened into life. We wish it all success and the officers a hearty support from young New Zealand.

On the much debated point of women climbing, Miss Du Faur has much of value to say. Here is a pertinent passage: "The strain on a woman who is physically fit is not to be compared to the nervous and mental tension which has to be endured by a trained hospital nurse who tends a dangerous case for sixteen hours. I have tried both and I *know* that the exercise, the invigorating air, and the healthy excitement of a big climb outweigh the nervous and physical strain. . . I say neither lightly nor unthinkingly, 'Do.' But, 'Do it sensibly.' First be sure that you are sound of heart and lungs and then work up, from small beginnings, to climbs of increasing difficulty, and then you will gain health, strength, self-reliance and

poise, which will be an advantage to you, no matter in what corner of life your lines are cast."

It would be useless to catalogue the climbs made. The accounts are clearly and interestingly given by one who has seen, and seeing has understood.

The book is beautifully produced and reflects great credit on the publishers, Messrs. Geo. Allen & Unwin, of London, and Chas. Scribner Sons, New York. The illustrations are illuminating, but a map would have added greatly to the pleasure of the reader.

We congratulate Miss Du Faur on her book, and trust we may soon welcome her among the Canadian mountains.

OFFICIAL SECTION

REPORT OF CATHEDRAL MT. CAMP

(1913)

The eighth annual camp of the Club was held from July 15th to July 25th, 1913, in Lake O'Hara Valley, and is known as "Cathedral Mt. Camp." It was pitched on a charming spot not far from the gravel wash that comes down in two channels between Mt. Victoria and Popes Peak, isolating a great obelisk of rock named the Watch Tower. Across the stream, behind the ladies' tents, rose the rock ledges and cliff glaciers of Cathedral mountain. At all times lovely, the valley looked most beautiful at evening, when the flames were shooting up from the camp fire and the highest rocks of the Watch Tower were tinged with rose.

Subsidiary camps were placed on the shore of Lake O'Hara and on the alpine meadow near Lake McArthur. The former was used merely as a bivouac on the way to more distant climbs, the latter was second only to the main camp in its power of attraction.

The camp was built by a contingent of Calgary members under the able direction of Mr. C. A. Richardson. The arrangements were much as usual, with the dining tent and the official square as a centre. The ladies' tents were west of the stream and, on several evenings. the water rose so rapidly and so high that the inhabitants had to be hurried across the creek at an early hour in order to reach their beds with dry clothes.

Altogether 195 were placed under canvas, and the majority stayed for the greater part of the camp.

Our old friend Professor Fay, representing the American Alpine Club and the Appalachian Mountain Club, and a new friend, Mr. Prouty, of Portland, Oregon, representing the Mazamas, were among the more noticeable of the visitors.

A statement of places from which camp attendance was drawn follows:

CANADA

British Columbia: Fernie, Kelowna, Revelstoke, Rossland, Sidney, Vancouver, Vernon, Victoria, Wilmer.

Alberta: Banff, Bow Island, Calgary, Edmonton, Edson, Lethbridge, Medicine Hat, Macleod, Okotoks, Pine Lake.

Saskatchewan: Drinkwater, Regina, Saskatoon.

Manitoba: Virden, Winnipeg.

Ontario: Ayr, Toronto.

Quebec: Montreal.

Photo, C. H. Mitchell

AROUND THE CAMP FIRE

F. W. FREEBORN, THE DEAN OF THE CORPS

UNITED STATES

Illinois: Chicago.
Indiana: Lafayette.
Massachusetts: Boston.
New York: Brooklyn, New York.
New Jersey: East Orange, Summit.
Oregon: Portland.
Pennsylvania: Bryn Mawr.

OVERSEAS

Newfoundland: St. John's.
England: London.
Germany: Detmold.
Switzerland: Interlaken, Zurich.
Austria: Vienna.

The following mountaineering clubs were represented: The Alpine Club, England; The Swiss Alpine Club, The American Alpine Club, The Appalachian Mountain Club, The Mazamas.

THE ANNUAL MEETING

In accordance with the Constitution, the Annual Meeting of the Club was held on July 20th under the dining tent, Vice-President J. P. Forde presiding.

The Director presented a report giving a summary of the history of the Club for the past year.

The Chairman announced the resignation of Mr. E. M. Saunders as Hon. Treasurer, to whom a vote of thanks was passed. Mr. W. J. S. Walker, of Calgary, was elected to replace him until the next election of officers.

Mrs. Henshaw was presented with the badge of the Club as being "distinguished in literature, science or art relating to mountains."

Votes of thanks were passed to the Governments of the Dominion, of Alberta and of British Columbia for substantial assistance to the Club in making known the alpine regions of Canada to the world at large.

Votes of thanks were also passed to the Canadian Pacific and the Grand Trunk railways for assistance to the Club in the holding of its camps.

REPORT ON MOUNTAINEERING AND EXPEDITIONS

The most important climbs made included Mts. Cathedral (10,454 feet), Odaray (10,165 feet), Biddle (10,876 feet), Huber (11,041 feet), Victoria (11,355 feet), Popes Peak (10,200 feet), and the Wiwaxy Peaks (8,863 feet).

Narao Peak and Cathedral Vanguard were also climbed, the latter affording more climbing than was anticipated. Several attempts were made upon the Watch Tower, but it was declared impossible. A great authority says that all difficult climbs go through three stages: "Impossible"; "The hardest thing I ever did in my life"; "An easy day for a lady." A way will probably be found up this rock in due time.

The favourite two-day expedition, first organized at the Paradise Valley Camp of 1907, was frequently repeated. Probably no journey so readily made gives such insight into the heart of the mountains.

An expedition was also made to Sherbrooke Lake, the valley being little known except to those who camped there in 1911. Shorter expeditions were made to Lakes McArthur, Oesa and Linda, the last, little known, is on the way to the Duchesnay Pass.

The professional guides were: R. Aemmer, C. Hasler, lent by the C.P.R., W. Schauffelberger and Conrad Kain. The more experienced members were assiduous in leading parties.

Seventy-five passed the graduating test from this camp. Their names follow:

July 6, Mt. Cathedral
H. E. Dobson
C. A. Maus

July 9, Mt. Cathedral
F. East
S. Jackson
E. Sinnott

July 12, Mt. Cathedral
D. L. Adam
W. Hughes
E. S. McGregor
C. H. Scott

July 17, Mt. Cathedral
P. S. Bailey
Miss A. E. Black
I. F. Brooks
W. C. Bruce
A. Calhoun
A. B. Dawson
Miss J. Dykes
Miss A. Fowler
Miss E. Goldie
W. W. Gould
H. Greenham
Miss M. E. Haskins
A. S. Matheson
G. P. Napier
Mrs. G. P. Napier
C. H. Ordas
Miss Reid
Miss E. M. Rife
Miss J. Ross
Miss K. Sharpe
R. H. Smith
B. L. Thompson
E. G. Voss
Miss K. Walker
Miss E. A. Zinkan

July 18, Mt. Odaray
O. B. Bourne
W. B. Christianson

July 19, Mt. Cathedral
E. W. Bickle
F. A. Comstock
Miss A. C. Cornell
Miss E. Crane
Mrs. R. L. Defries
A. Gillies-Wilken
Miss E. I. Gray
Miss L. R. Hargrave
Miss E. L. James
Miss G. M. Macdonald
Miss J. L. McCulloch
W. C. McNaught
Miss A. C. McNee
T. M. Ovens
J. M. Poucher
E. J. Pratt
P. M. Sauder
Mrs. P. M. Sauder
Miss E. B. Schoenberger
Miss F. J. Spackman
Miss J. Stuart
Miss F. E. Tolhurst
F. Trant
Miss E. C. Tyler
J. C. Tyler
W. A. Tyler

July 21, Mt. Cathedral
Miss E. M. Davis
J. A. Edgar
W. F. Fisher
Miss P. M. Hall
P. D. Newcombe
A. C. Patterson
Miss W. L. Patterson
Miss A. A. Ramsay
Miss G. Rorison
C. M. Sheldon
A. R. Whittemore

July 23, Popes Peak
A. J. Campbell

ARTHUR O. WHEELER, Director.

A. L. Mumm Moritz Inderbinen

Photo, F. W. Freeborn

MT. ROBSON CAMP
on Snowbird Pass

REPORT OF MT. ROBSON CAMP
(1913)

A camp was held in Robson Pass from July 28th to August 9th, 1913.

"The half is oft-times greater than the whole," said the wise Greek, and the observant bachelor agrees. Though in consideration of its remoteness from rail and other communication, the camp held at the foot of Mt. Robson was necessarily limited in number; it was, in many respects, the most delightful camp the Club ever held. It was confined to active members, many of whom came on from Cathedral Camp. Fit though few was true in more senses than one.

By the courtesy of the Grand Trunk Pacific Railway a special train was run from Edmonton to Mt. Robson Siding, where an agent was stationed during the life of the Camp, to look after Club affairs. From the siding members travelled by "tote" road, used by the supply waggons when the railways were being built, to a base camp where the night was spent. Thence, the next morning, the journey of fifteen long miles was made to the main camp over the new trail constructed by Donald Phillips for the British Columbia Government. Sloping bridges had been constructed by the ingenuity and skill of Mr. Phillips up the steep rock faces which formerly had rendered this route impracticable, and camp was reached without difficulty.

The camp was pitched in the timber on the shingle flat on the summit of Robson Pass, between Berg Lake and Lake Adolphus, Other mountains, other prospects were in sight, but Robson dominated all, rising in solemn state, girded by its great glacier, attended by its Helmet bearer, from the waters of Berg Lake. The camp was built by Phillips and the Otto Brothers, and was truly comfortable.

Subsidiary camps were placed about six miles down the Smoky River and by Calumet Creek near Moose Pass. Seventy-three persons were placed under canvas.

Among the more noticeable guests were Mr. W. W. Foster, the representative of the British Columbia Government, who officially welcomed the Club to the new Mt. Robson Park, and expressed its appreciation of the great work the Club was doing. From England came friends of former years, Mr. A. L. Mumm with his shadow Inderbinen, and Mr. G. E. Howard. Mr. Haskett Smith also made the long pilgrimage across the Atlantic and across the continent, but the mountains were in an ungracious mood and gave him but a scurvy welcome. A blow on the leg from a falling rock led to blood poisoning, with the result that he was dangerously ill during the period of the Camp, and eventually had to be carried to the railway on a stretcher. We are thankful to say that his recovery, though tedious, was complete.

Professor Fay came from Cathedral Camp to see a region of the Rockies unknown to him. Also from the United States came Mr. C. S. Thompson, renewing experiences of earlier days, and Mr. Prouty of the Mazamas.

Representatives were in camp from the following places:

CANADA

British Columbia: Sidney, Vancouver, Vernon, Victoria, Wilmer.
Alberta: Banff, Calgary, Cowley, Jasper, Lethbridge, Lundbreck.
Saskatchewan: Regina, Saskatoon.
Manitoba: Winnipeg.
Ontario: Toronto, Woodstock.
Quebec: Montreal.

UNITED STATES

District of Columbia: Washington.
Illinois: Galesburg.
Indiana: Lafayette.
Iowa: Iowa City.
Massachusetts: Boston.
Minnesota: Minneapolis.
New Jersey: Summit.
New York: Brooklyn, New York.
Oregon: Portland.

OVERSEAS

England: Buckhurst Hill, London.
Austria: Vienna.
Switzerland: Zurich.

The following mountaineering clubs were represented: The Alpine Club, England; The Swiss Alpine Club, The American Alpine Club, The Fell and Rock Club, The Appalachian Mountain Club, The Mazamas.

CLIMBS AND EXPEDITIONS

The outstanding events of the camp were the successful first complete ascent of Mt. Robson from the east, and two other attempts so nearly successful as to be of the utmost value in establishing a permanent practicable route of ascent from the west. These are fully detailed elsewhere. Among other climbs of importance were Whitehorn, Resplendent and Lynx. Calumet Peak and a neighboring peak, at present named "Mt. Pamm," were ascended from the Moose Pass camp. The latter presents no difficulties, nor much variety, but the climb is worth while because of the superb view commanded of Twin Tree Lake and of the country to the north, including that magnificent mountain mass which has aroused so much interest and which in the distance appears a worthy rival of Robson. Mts. Chown and Bess are well seen, also Mts. Longstaff and Robson; in fact, a new world for future conquerors. Near Camp, Mt. Mumm was climbed, as also its neighbors known as No. 2 and No. 3. "Saurian Peak" was suggested as a name for the former. Mt. Gendarme was climbed on one of the expeditions over Mural Pass, and there were several climbs of Rearguard, descending by the edge of Tumbling Glacier.

Expeditions were made by various routes to Moose Pass and Smoky River Camps, by the Snow Bird Pass, the Coleman Glacier and

Calumet Creek, by the Mural Glacier, and so on. The resultant impression produced was of a land of magnificent glaciers, a garden of glorious flowers.

Much has been said in disparagement of the Robson weather, but the Club was singularly fortunate as the weather was fine for the greater part of the camp; consequently, the streams were high and powerful and their waters cold.

It was not a camp for graduation, but Miss H. B. Walcott became an active member on Mt. Resplendent on August 4th.

ARTHUR O. WHEELER, Director.

REPORT OF UPPER YOHO CAMP

(1914)

The ninth annual camp of the Club was held in the meadows near the head of the Upper Yoho Valley from July 21st to August 11th, 1914. It was pitched in a grove of spruce and fir, not far from tree line, at an altitude of some 6,700 feet, a most convenient location for the climber. As in 1913, Mr. C. A. Richardson, with efficient aid from Calgary members, built the camp and made every preparation for the army which invaded the country when the camp opened. Though a long way—eighteen miles—from the railway, it was said that the journey was, perhaps, the most beautiful part of the programme. Arrangements were made by which members could drive from Field to the Takakkaw Falls and walk thence by the high trail to camp. Many preferred to travel via Burgess Pass, and still others came by Emerald Lake.

The Director was, as usual, at the head of affairs, and Dr. Bell was tyrant of the commissariat. The camp was laid out on the familiar plan which experience has shown to be most convenient. This year the men's quarters were across the stream which flowed through its midst. A subsidiary camp was placed near the Yoho Glacier, and was very popular.

The prolongation of the period to three weeks was found to give general satisfaction and was pronounced a success. The declaration of war, however, raised a restless spirit, and the last few days were somewhat unsettled.

Mr. Barnard-Hervey, the Chief Superintendent of Dominion Parks, paid several visits to the camp, and spoke appreciatively of the work the Club was doing. Mr. W. W. Foster, M.P.P., was again the official representative of the Government of British Columbia, and expressed its continued approbation of the policy of the Club. Dr. Emerton, of Boston, the distinguished entomologist, found much material of scientific importance in the neighborhood. Mr. C. J. Collings made many sketches, and hopes to hold an exhibition of the finished paintings in England and in Canada when peace reigns again.

In all 206 were placed under canvas, the largest number yet recorded. The denizens of the camp were drawn from the following places:

CANADA

British Columbia: Fernie, Kelowna, Revelstoke, Seymour Arm, Vancouver, Vernon, Victoria, Wilmer.
Alberta: Banff, Bow Island, Calgary, Coutts, Cowley, Edmonton, Lundbreck, Lethbridge, Medicine Hat, Macleod, Namaka, Strathcona, Vulcan.
Saskatchewan: Moose Jaw, Prince Albert, Regina.
Manitoba: Brandon, Kemnay, Winnipeg.
Ontario: Hamilton, London, Ottawa, Strathroy, Toronto.
Quebec: Montreal.
Nova Scotia: New Glasgow.

UNITED STATES

Connecticut: Greenwich.
Illinois: Chicago, Galesburg.
Indiana: Lafayette.
Massachusetts: Boston.
Missouri: St. Louis.
New York: New York, Brooklyn.
North Dakota: Grand Forks.

OVERSEAS

England: Ascot, Eton, Hitchen, London.
Scotland: Ayr.
Switzerland: Interlaken, Lucerne, Zurich.
Austria: Vienna.

The following mountaineering clubs were represented: The Alpine Club, England; The Swiss Alpine Club, The American Alpine Club, The Appalachian Mountain Club and the Mazamas.

THE ANNUAL MEETING

In accordance with the Constitution, the annual meeting was held at the Camp fire circle on August 4th, 1914; Dr. F. C. Bell, Vice-President, took the chair.

Communications expressing regret for non-attendance were read from Dr. A. P. Coleman, J. P. Forde, Mrs. Henshaw, Sir James Outram, J. D. Patterson, Dr. and Mrs. Walcott.

Credentials were received from Dr. Emerton, representing the New England Federation of Natural History Societies and from Mr. Bent representing the American Alpine Club and the Appalachian Mountain Club. Dr. W. E. Stone represented the Mazamas.

The Director read his annual report summarizing the history of the Club for the past year.

This being the year for the election of officers, the ballots were scrutinized and the following declared elected:

Hon. President	**Sir Sandford Fleming**
President	**J. D. Patterson**
Vice-President, East	**Dr. F. C. Bell**
Vice-President, West	**J. P. Forde**
Hon. Secretary	**Mrs. J. W. Henshaw**
Hon. Treasurer	**W. J. S. Walker**
Director	**A. O. Wheeler**
Sec.-Treas. and Librarian	**S. H. Mitchell**

Photo, W F. O' N. Fisher

UPPER YOHO CAMP
Dean Robinson holds Sunday Service

Several proposed amendments to the Constitution were considered. These have since been voted on and adopted.

Votes of thanks were passed to the Governments of the Dominion, of Alberta and of British Columbia for their continued financial support of the Club, enabling it to carry out its work to the greatest advantage of the country at large.

Votes of thanks were also passed to the C.P.R. and to the Superintendents of Dominion Parks whose aid contributed so largely to the success of the camp.

A vote of thanks was passed to Mr. W. J. S. Walker in acknowledgement of his generous gift of a medicine chest to the Club and his provision for its maintenance.

REPORT ON MOUNTAINEERING AND EXPEDITIONS

The following peaks were climbed, several of them by various routes: Mts. President (10,287 feet), Vice-President (10,049 feet), Marpole (9,822 feet), Kerr (9,384 feet), Kiwetinok (9,512 feet), Pollinger, McArthur (9,882 feet), Isolated Peak (9,224 feet), Habel (10,361 feet), Gordon (10,336 feet), and Balfour (10,731 feet).

Extended trips were made not only through Emerald Pass but into the Amiskwi Valley and over the Daly Glacier to Sherbrooke Lake and Hector station.

The professional guides were Ernest Feuz and Christian Joriman, lent by the C.P.R.; Walter Schauffelberger and Conrad Kain. Many Active members most unselfishly led parties of novices on climbs and expeditions.

Ninety-two passed the test for active membership upon Mount President. Their names are given below:

July 15th

Miss C. E. Eyres
Mrs. C. A. Maus
J. C. Oxborough
Wm. Oxborough
G. R. Street

July 22nd

R. G. Annand
W. R. Ball
Miss M. E. Burgoin
W. F. Guild
E. J. Hacking
Mrs. J. V. Lynn
Miss D. E. Mitchell
J. C. MacHutcheon
C. B. Reynolds
Miss M. Robertson
F. Schmid
R. B. Winser

July 23rd

Dr. C. Barck
J. S. Bennett
M. Bishop
Miss M. Cowell
Miss D. Foster
H. W. A. Foster
T. P. Hill
Miss W. E. Marples
Miss D. Nairn
Miss A. Norrington
G. L. Oliphant
Miss F. Potts
Miss T. Thomson
Miss E. F. Trenholme
Miss M. H. Trenholme

July 24th

J. M. Beaton
Miss L. Christie
Mrs. A. A. Perry

July 27th

T. Fitzsimon
Miss C. Gamble
D. Lang
Miss F. B. MacLeod

J. O'Fallon
Miss E. Penson
B. Sexton
Miss M. Turnor
C. B. Waagen

July 28th

Miss E. Dixon
Jas. G. McDougall
Miss Sara E. Spencer

July 29th

Miss E. Battell
Dr. J. A. Gunn
W. H. Honens
Miss E. P. McNicoll
Miss K. McQueen
Miss E. J. Poole
Miss A. Smalley
Miss C. Smith
O. Warren
J. M. Wilson
Miss L. Woodley
W. F. Gillespie

July 30th

Gordon W. Patterson
Miss E. Roberts
Miss G. H. Rockwell
H. H. Sayre

July 31st

Miss N. Burke
Mrs. A. I. Devey
Jas. A. Eyres
Miss E. Savatard

August 1st

Miss H. Byers
Miss G. Carson
Miss Z. M. Constable
Miss J. English
Miss N. Freeborn
Miss R. C. Hewitt
Miss K. F. MacKinnon
Miss C. L. Scott
Miss H. Stuart
Miss R. Nicholson

August 3rd

Miss G. Lucas
Miss M. MacKinnon
Miss J. I. McLeish
Miss M. D. Nettleton
Miss K. M. Roe
Miss C. Thomson

August 5th

D. J. Douglas
F. Harling
Miss M. L. Moore
Miss T. Thomas

August 7th

Miss M. Calhoun
Miss Ethyl M. Madden
Miss M. J. Monk

August 9th

Miss Ella Madden
W. B. K. Porter

ARTHUR O. WHEELER, Director.

THE CLUB LIBRARY

As will be seen from the catalogue appended, the Club Library continues to grow. We still, however, have space for many more books in our attractive room. Books are expensive and the Club scarcely feels justified, under present conditions, in spending much of its income upon them. It has been suggested that a number of members, who graduate upon the same day, might club together and, without any serious outlay, purchase a book for the library as remembrance of the event.

We live in the hope of some day receiving a complete set of Palliser's Reports on his Expeditions in the middle of the last century. This is an exceeding rarity, and only to be bought at a very high price when it does appear on the market.

Other books which the Club would like to possess are:

Peaks and Precipices. Guido Rey.

Karakoram and Western Himalaya. F. de Filippi.
Twenty Years in the Himalaya. C. G. Bruce.
Exploration of the Caucasus. D. W. Freshfield.
Building of the Alps. T. G. Bonney.
Mountains: Their Origin, Growth and Decay. Jas. Geikie.
The Alps. Sir M. Conway.
Complete Mountaineer. G. D. Abraham.
The Conquest of Mt. Cook. F. Du Faur.

CATALOGUE OF BOOKS IN THE LIBRARY OF THE ALPINE CLUB OF CANADA

Above the Snow Line. Clinton Dent.
Active Service Pocket Book. Bertrand Stewart.
Alpenismus in Bildern. A. Steinitzer.
Alpine Ascents and Adventures. E. Schultz Wilson.
Alpine Flora of Canadian Rocky Mountains. Stewardson Brown and Mrs. Chas. Schaffer.
Alps, The. Arnold Lunn.
Alps, The, from End to End. Sir M. Conway.
Alps, The, in Nature and History. W. A. B. Coolidge.
Among the Selkirk Glaciers. W. Spotswood Green.
Ascent of Denali (Mt. McKinley). Hudson Stuck.
Ascent of Mt. St. Elias. F. de Filippi.
Astoria, 1836. Washington Irving.
Atlas of Modern Geography. Stieler.

Bibliography of the White Mountains. A. H. Bent.

California and Alaska, and over the Canadian Pacific Railway. W. S. Webb.
Camp Fires in the Canadian Rockies. Hornaday and Phillips.
Camps in the Rockies. W. A. Baillie-Grohman.
Canada. W. H. Russell.
Canadian Rockies, The. A. P. Coleman.
Catalogue of Canadian Birds. John Macoun and James Macoun.
Chamonix and Mt. Blanc. (Guide Book.) E. Whymper.
Characteristics of Existing Glaciers. W. H. Hobbs.
Central Caucasus and Bashan. D. W. Freshfield.
Clarkson's Standard American Dictionary.
Climate and Cosmology. James Croll.
Climber, A, in New Zealand. Malcolm Ross.
Climbing on the Himalaya. J. Norman Collie.
Climbs and Explorations in the Canadian Rockies. J. Norman Collie and H. E. M. Stutfield.
Columbia River, The. Ross Cox.
Conquest, The, of Mt. McKinley. H. Belmore Brown.

Description, The, and Natural History of the Coast of North America (Acadia). Nicola Denys. Edit. W. G. Ganong.

England and Canada: From Old to New Westminster. Sir Sandford Fleming.
Englishman in the Alps. A. Lunn.

Farm Weeds of Canada. G. H. Clark and James Fletcher.
Fisherman's Summer in Canada, A. F. G. Aflalo.
Five Months in the Himalaya. A. L. Mumm.

Geography and Geology of Himalaya Mountains and Tibet. A Sketch. S. G. Burrard and H. H. Hayden.
Glaciers of the Alps. J. Tyndall.
Glaciers of the Canadian Rockies and Selkirks. W. H. Sherzer.
Great Lone Land, The. W. F. Butler.
Guardians of the Columbia. J. H. Williams.
Guide to Lake Louise Region. W. D. Wilcox.

Hearne's Journey from Hudson's Bay to the Northern Ocean. Edit. J. B. Tyrell.
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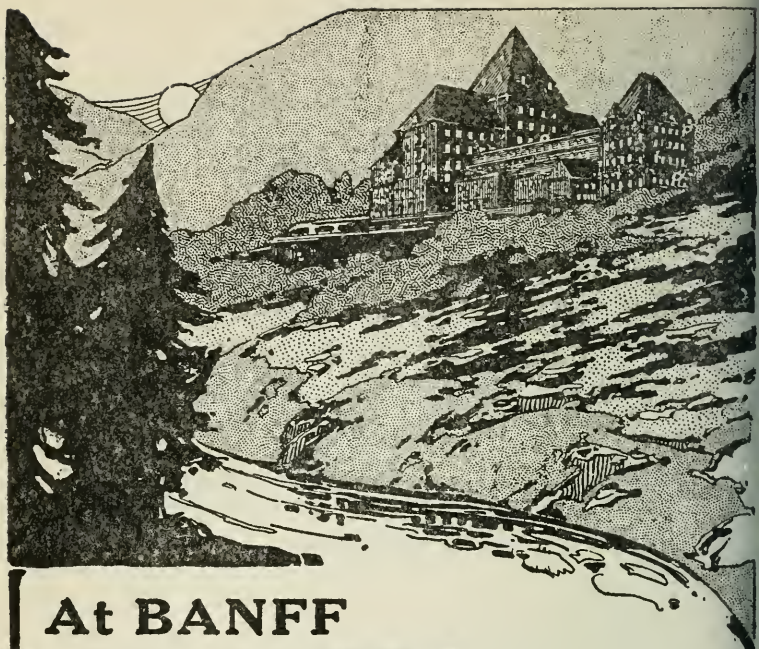

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Showing North and South Towers
(See Article by Dr. J. W. A. Hickson)

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MOUNTAINEERING SECTION.

MT. TETRAGONA

A First Ascent in Labrador

By A. P. Coleman

The Torngat Mountains in Labrador are only 1,300 miles northeast of Toronto, but to reach them means a journey of nearly 4,000 miles. The Rockies, though much farther off, can be reached in less than a week of comfortable travel, but the Torngats had the irresistible charm of being almost unknown, so my steps were turned toward them last summer. The journey did not lack variety, for it meant travel by railways, steamships, motor boats, a schooner, and an Eskimo skiff before my point was reached, and it was forty days after my departure from Ontario when our skiff slipped into Komaktorvik fiord before a gentle east wind on the 4th of August. East wind on that coast means fog, and all the higher parts of the shores were hidden as we advanced, feeling our way along the black bases of cliffs and hearing the sound of invisible waterfalls. It seemed a mysterious land of shadows and I wondered what clear weather would disclose. The landing in the fog at the rocky end of the fiord where a large river came in did not seem inspiring to me, but my Eskimos were in high excitement, for seals were bobbing up all around. As soon as camp was set one of the men was after them in the Kayak, and that evening we had seal meat for dinner.

After a few days exploration, mostly in fog or with clouds hiding the mountain tops, and a climb of the

nearest peak, 3,000 feet high, where I got above the mists, it seemed advisable to move our camp five miles inland to a valley sheltered from the northeast winds and the masses of vapor which they piled up along the shores of the fiord.

Next morning the three of us set out with heavy packs through a wide valley with a fine mountain and a small glacier at its southern end. Noon found us encamped 1,000 feet above the sea and actually in sunshine. The camp ground, beside a little canyon through which a river roared, and a grand cliff a half mile off, was excellent but for the lack of wood. The largest trees were willows a few inches high. Cornelius solved the fuel problem, however, by gathering white heather *(Cassiope tetragona)* with which he managed to produce enough smudge to boil water for tea. This plant it seems will burn even when green.

I christened the near-by mountain Tetragona. It was a joy to bask in the sunshine now that we had left the chill fogs of the sea coast and, to add to the homelike feeling, swarms of black flies attacked us just as they would have done in a Rocky Mountain valley.

As the face of the mountain opposite was unpromising for climbing, I spent the afternoon wandering up the pass in search of a better place and succeeded in finding a lake a mile long surrounded on three sides by cliffs equally impossible. The outlook to the southwest was not good so, after supper, Cornelius showed me a way he had found for crossing the river in the canyon by jumping from rock to rock, and we explored in the opposite direction. From a hill we could see the cirque and glacier with steep walls behind it rising to the twin peaks of Tetragona, but beyond the mountain fell away toward a col which looked attackable. We decided on that route for the next day's climb.

The early morning of August 10th was cloudy and all the higher mountains were covered till 6.45 a.m. when the

Photo, A. P. Coleman

FIRST GLACIER, MT. TETRAGONA
Main Summit to Right

Photo, A. P. Coleman

SECOND GLACIER, MT. TETRAGONA

sun melted its way through the mists and we set off down the valley at a sharp pace so as to make up for lost time. We tramped over stony meadows with boggy places, just like parts of the Rockies above timberline but with scantier vegetation, rounded a bastion of Mt. Tetragona, getting a full view of the small glacier and snowfield, and crossed the stream coming from it on stepping stones. I managed to get my feet wet but Cornelius' sealskin boots kept him dry in spite of his shorter legs.

A mile more brought us to a second glacial stream, luckily bridged with snow, and this we crossed and followed up, climbing over rock ledges, each with a little strip of grass or moss on top. At one point my Eskimo pointed out a broad leaved sorrel and said "good." We helped ourselves to bunches of the sour leaves as we walked, and presently we rounded the foot of a cliff and reached the rim of a cirque with a blue-green lake and a second glacier rising above it. It looked attractive and if there had been three of us with a rope I should have taken that way up the mountain, but it was very steep and Cornelius' boots had no heels nor hobnails.

We turned off toward the col between Tetragona and the next peak to the north, and there could look down from about 2,000 feet upon the foggy sea. Then came a choice between a long snowslope and a bad looking stretch of loose stones beside it. I soon found that my companion was no good on snow at an angle of forty-five degrees, so we toiled painfully up over the stones, perpetually rolling beneath us, till solid rock was reached at 3,600 feet. Here melting snow provided a drink and we halted for our lunch of biscuit and Australian mutton. We were near the bergschrund of the second glacier and, looking over a cliff, could see the snowfield and then a crevassed surface reaching down into the cirque, followed by three tiny gem-like lakes. On the other side a sea of pearly cloud filled the valleys and billowed against the mountain sides. It was the

"silver lining" of the fog which had been so depressing on the shores of the fiord. Beyond the fog one could see the Atlantic, whitened by long swirls of floe ice coming down with the Arctic current.

After lunch the ridge narrowed to a ragged edge of loose blocks and, before long, it was cut up into gendarmes and pinnacles decidedly uncomfortable to negotiate, particularly so as one looked down over cliffs and the snowslopes of the first glacier on the northwest, and on a wall of gneiss followed by a curious sheet of steep ice almost free from snow on the southeast.

I decided to make my way down one or two hundred feet and work along a wall of gneiss which had a tilt of seventy or seventy-five degrees. Here narrow edges of the rock could be followed, occasionally stepping up or down to another level. The work was strenuous and sometimes dangerous, with the steep ice slope waiting below in case of a slip, and a quarter of a mile of it kept me busy for an hour. It was a relief when the ridge widened again and I could sit down and get my breath.

Cornelius had kept close to my footsteps along the ridge, but when I started along the face of the cliff he was left behind and I felt rather worried about his sealskin boots on the rocks. The worry was quite uncalled for and I could see him cautiously making his way across by a route of his own, the soft and flexible sealskin clinging to the gneiss quite as well as my worn hobnails. Before long he was sitting beside me and his narrow eyes brightened when I told him: "You good climber."

The rising crest of the ridge widened to about 300 yards and was covered for a quarter of a mile by a steep and dazzling snowfield, where Cornelius was slow and afraid of slipping. Then the ridge narrowed again to ten or twenty feet of big gneiss blocks, safe enough but hard to scramble over, and at length we found ourselves

on the highest point, though a second peak rose to nearly the same level beyond a break of a few hundred yards.

The top proved lower than I had expected, 4,700 feet by my best aneroid, and 200 feet higher by an older one, while I had estimated it at something over 5,000. Cornelius built a massive cairn, while I sketched in the topography and enjoyed the magnificent view over sea and land. There was still fog in the deep hollow of Komaktorvik fiord and the lower valleys, but the mountains were mostly free from cloud. On all sides except seawards stretched an almost unknown wilderness of mountains, domes or ridges or separate peaks, with many small snowfields and a number of cirque glaciers, none of them large. Thirty miles to the south could be seen the depression of Nakvak fiord, the finest on the coast, surrounded by mountains apparently higher than those at Komaktorvik.

Our immediate surroundings were impressive. The cirque of the largest glacier yawned beneath us to the northwest with cliffs fifteen hundred feet high enclosing the snowfield, followed by blue ice and an exquisitely colored lake. Lower down in the shadow of cliffs were two other small lakes. The second glacier was out of sight, but we looked down on the ice sheet to the southeast and a half frozen lake below it. The wild and ragged coastline of the Atlantic could be followed for many miles till lost in haze northwards toward Cape Chidley and southwards beyond Nakvak.

It was a wide and splendid view but it lacked one great element of beauty in the Rockies. There were no wooded slopes nor groves of evergreens in the valleys, since Komaktorvik in latitude 59 deg. 30 min., is north of the timberline, and we looked out upon one of the stoniest and most desolate regions in the world. I was reminded of the view from Mt. Nordenskjold in Spitzbergen, where, however, the glaciers are much larger.

The top was reached at noon and an hour later we turned back. I had a good glissade on the snowfield, but Cornelius came down cautiously. The crossing of the steep face of gneiss was quite as bad as in the morning, but after that we made good time and reached camp about 5 o'clock, well pleased with our conquest.

As Cornelius was striving to make tea over a smoky fire of white heather, Johannes came in heavily loaded and covered with blood. He had shot a caribou in the next valley and had brought home the skin and all the meat he could carry. Cornelius opened up the bundle, cut off some titbits of the meat and ate them, then offered me a share and was rather surprised at my refusal. My turn did not come till the next day when we had gone back to the fiord, where a few sticks of drift-wood made it possible to have a gorgeous venison stew, the first fresh meat for almost a month except the fishy tasting seal shot on the day of our arrival.

My friends of the Alpine Club, with bright visions in their minds of splendid peaks in the Rockies reaching 10,000 feet or more, may wonder why a mountain of only 4,700 feet should be worth counting as a first ascent. It should be remembered that these peaks of the Torngats rise almost straight from the sea instead of from foothills 3,000 or 4,000 feet above sea level as the Rockies do, and they they are entirely above timber line. They are as rugged and often as difficult to climb as most mountains in the Rockies.

Tetragona is in a region hitherto unmapped and never visited by a white man so far as the records go, and it is several hundred feet higher than the highest point hitherto reached in Labrador, the next to it being Mt. Faunce near Nakvak, thirty miles to the south, which was climbed by Messrs. Delabarre and Adams in 1900. They made its elevation 4,400 feet.

Two weeks after our ascent of Tetragona we climbed three peaks in the Nakvak region, one going a little over

5,000 feet, and it is possible that a few mountains near by approach 6,000 feet, but I am doubtful if any go beyond that.

In altitude the Torngats cannot be compared with our western mountains, and until they are more easy of access it is not likely that many climbers will visit them, but there is a charm in their very remoteness and desolation that must attract the explorer. Virgin peaks, such as they are, may be counted by the dozen and there are many fine rock climbs, but the glaciers are too small to be of much importance to the mountaineer. The rocks are usually very sound, a great comfort where cliffs have to be scaled, and in this respect the Torngats have a great advantage over many of our western peaks, particularly in the Selkirks.

CLIMBS AND EXPLORATIONS IN THE PURCELL RANGE IN 1915

By W. E. Stone

In the summer of 1915 through the hospitality of Mr. and Mrs. A. H. MacCarthy there assembled at Karmax Ranch, near Wilmer, B.C., in the Upper Columbia Valley, a small party of mountaineers who, under the enthusiastic leadership of their hosts, engaged in two most interesting expeditions into the Purcell Range.

The beauty of the Upper Columbia Valley has been described more than once but never to exaggeration. For more than a hundred miles it lies enclosed between guardian mountain ranges, its sheltered, peaceful meadows and placid lakes contrasting with the vast wilderness surrounding them. To dwell in this smiling region and at the same time feel oneself in intimate touch with the splendid mountain ranges on its western border is a lot which every mountaineer might envy and of which our hosts have shown themselves highly appreciative.

The original possessors of this country were the Kootenai Indians, who now linger a mere remnant within the prosaic boundaries of a government reservation. Some of the earliest explorers visited the valley and even pushed on over the more accessible mountain passes; in recent years settlers have entered the region attracted by its fertility and climate; miners have prospected the foothills; trappers and hunters have plied their vocations; but mountaineers discovered it only a few years since and as yet have scarcely penetrated into the labyrinth of valleys or trod more than a few of its multitude of peaks. Thus a great alpine region remains practically unexplored and unknown. A reconnaissance

at the head waters of Bugaboo Creek, expeditions up Toby Creek to Wells Pass, and the partial exploration of the region at the head of Horse Thief Creek and its South Fork constitute all of the recorded efforts to explore this section. Of the vast array of peaks to be seen from any high station, barely half a dozen have been climbed. It might, therefore, be expected that the account of our two expeditions should describe new country and record the ascent of virgin peaks.*

I. Mt. Ethelbert and the Region on the South Fork of the Salmon River

From the neighborhood of Spillimacheen, about fifty miles south of Golden, the traveler on the general purpose train which semi-weekly, and with great deliberation, proceeds up the valley, may observe a conspicuous snow-crowned peak visibly overtopping its neighbors on the western horizon. Upon it in 1886 was bestowed the name of Ethelbert by Captain Armstrong of the Columbia River steamer Ptarmigan, in memory of a nun who died on his vessel. The mountain is the apex of a ridge extending toward the Columbia Valley at right angles to the main range and enclosed on the north and south by forks of the Salmon River. The region at the headwaters of these streams is practically unknown save to occasional trappers who have penetrated the valleys and there is no record of any attempt at its exploration, although

*The records of mountaineering in the Southern Selkirks will be found in the following named articles:

Across the Purcell Range of British Columbia. T. G. Longstaff, Canadian Alpine Journal, 1911, page 26.

First Ascent of Mt. Hammond. C. D. Ellis, same, p. 14.

The Upper Columbia. Elizabeth Parker, same, p. 147.

First Ascents in the Southern Selkirks. Edward W. Harnden, Canadian Alpine Journal, 1912, p. 98.

Climbs in the Southern Selkirks. Edward W. Harnden, Appalachia, vol. XII., 1912, p. 350.

Exploration in the Southern Selkirks. Edward W. Harnden, Canadian Alpine Journal, 1914, p. 103.

First Ascents of Mt. Farnham and Mt. Farnham Tower. A. H. MacCarthy, Canadian Alpine Journal, 1914, p. 112.

Pioneering in the Southern Selkirks. Marion Randall Parsons, Sierra Club Bulletin, vol. IV., January, 1915, p. 240.

there is a fugitive rumour of an unsuccessful expedition to the mountain a few years ago.

Setting out from Karmax Ranch on July 22nd for the purpose of visiting this region and hopeful of making the first ascent of Ethelbert, we made a day's journey down the valley on a primitive wagon road. The region through which we traveled is a bench of the valley composed of the debris deposited from the canyons which reach far back into the mountains, a rather desolate, burned over country reforested by a growth of Jack pine and dotted with many lakes. Towards the end of the day we found ourselves separated from the main valley by a rocky ridge known as Steamboat Mountain, and, turning aside between two blazed trees, came presently to two sedgy lakes and camped for the night. From our bivouac on Twin Lakes where we abandoned wagon transport, a pony trail (the old Golden Trail) leads westward one and one-half miles to Deep Lake, where the next day we established our base camp and for a week enjoyed the peculiar beauty of that solitary spot.

The lake is separated from the mountain range by wooded foothills beyond which the higher peaks rise and are mirrored in its clear waters. Save for the early morning cries of a family of loons, no sound disturbed the quiet of this lovely lake. An abundance of trout supplied our larder and but for the pestiferous yellow-jackets, who, on more than one occasion, routed us by their fiery onslaughts, there was nothing to mar the pleasure of the situation.

Deep Lake lies near the South Fork of the Salmon River and a preliminary reconnaissance indicated that the best route to Ethelbert lay up the valley in which this stream has its source, apparently near the foot of the mountain. On the morning of July 25th a party of six consisting of four men and two ladies, carrying on their backs supplies for four days, took advantage of the

old trail for a mile or two in its northward course from Deep Lake and then turning toward the mountains, followed the winding course of the stream up the valley. For a time the going was easy through open, level places between clumps of trees. We found a deserted prospector's camp with a long abandoned cache of rotting saddle and blankets and a rusty miner's pan, hinting vaguely at disappointed hopes or even a darker tragedy. A little farther a trapper's lean-to was the last trace of man's presence which we saw before passing into the narrow jaws of the valley where soon we were forced to clamber high above the boisterous stream in order to make way.

The day was hot; the steep slopes and rocky ridges were scattered with brush and fallen timber, and our slow progress was toilsome and disagreeable. From the stream, which was often dammed by the debris of avalanches, both sides of the valley rose in steep "slides" alternating with timbered slopes. At noonday some one ventured the guess that it would require about an hour more to round the last timber ridge and reach the camp at the foot of Ethelbert. In actual fact it took six hours of strenuous effort under conditions which became constantly more difficult and our bivouac was finally made in the darkening twilight.

The day's course lay westward along the north side of the valley except at the last when a great mass of broken tree trunks piled impassably across our way testified to the power of snowslides and forced us to the south side of the stream. Soon after we entered a thick stand of timber, underbrush, fallen trees and moss covered rocks, where a tumbling cataract descended from the south side of the valley, making a loud noise among the trees, falling without pause from its source which two days later we discovered in a desolate hanging valley. A passing shower had wet the underbrush, thus adding the final element of discomfort to our progress.

Then came the climax of the day. Emerging from the thick brush, we came with startling suddenness on a scene so dramatic and beautiful that for a moment our eyes could scarcely be trusted, while weariness and discomfort were quite forgotten. Before us lay a lake of exquisite blue color resting like a jewel in a setting between two rugged peaks, which mirrored in the clear water, rose abruptly thousands of feet on either hand like grim guardians of a lovely treasure. Beyond the lake the lifted eyes rested on a terrace stretched across the valley like a giant curtain eighteen hundred feet above the lake, down whose verdant slopes two gleaming cascades traced their foaming course and filled the whole amphitheatre with the sounds of falling water. Still farther and higher in the background, great snow crests appeared, inscrutably looking down upon us. No contrast could have been greater than that which this scene offered to the day's experiences. It was the kind of reward which the mountaineer so often wins and which is compensation for any toil or danger.

Soon our camp fire was burning on the north shore of the lake at the very foot of Ethelbert and in spite of weariness, it was late before eyes were closed to the beauty of that rare valley into which quiet stars looked down and where the falling waters made the only sound.

On the following morning we left camp for the ascent of Ethelbert at 5.45 o'clock. The weather was cloudy and the aneroid indicated an altitude of fifty-seven hundred and fifty feet at the lake side. Our course lay directly up from the lake over an open, grassy slide, where we surprised two antlered deer taking breakfast and willing to pause for several minutes while we made their acquaintance. The south face of Ethelbert which now confronted us is characterized by a long, forked couloir filled with snow which makes a conspicuous land mark and enabled us two weeks later to identify the peak when

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MT HORETB
8750
SURPRISE LAKE
CAMP
5750
MT ETHELBERT
10430

FOLDOUT BLANK

seen from different high stations in the ranges to the south.

We crossed the lower end of this snow to the rocks on the west side, working up easy slopes and chimneys to a point near the fork of the couloir at an altitude of about nine thousand feet where the steepness of the rock face compelled us to traverse toward the couloir. The ropes now became necessary although all of the party were experienced climbers. Not caring to trust ourselves in the snow trough, we picked our way cautiously up the west side of the deep gully clinging to the rocks and for a half hour or so enjoyed some exciting situations, this being the most difficult part of the whole ascent. Arriving at the head of the west branch of the couloir, we found ourselves on the western arête which led by a steep slope over snow and smooth rock slabs to the summit where we arrived at eleven o'clock. The barometer indicated 10,450 feet and in the absence of all evidence to the contrary, we claimed it as a first ascent and built a substantial stone man containing the following names: Mr. and Mrs. A. H. MacCarthy, Mr. and Mrs. W. E. Stone, H. O. Frind and Conrad Kain.

Through occasional rifts in the clouds which enveloped the peak, we had tantalizing glimpses of the lower world but, although we remained two hours on the summit, the genius of the weather would not relent and we were obliged to forego a view which under other conditions would doubtless have been unusual. Conrad felt his way across the ridge to a second peak a few hundred yards to the north and reported it decidedly lower than the one on which we stood. This summit ridge falls away sharply on the east and northeast where through the clouds we could discern a glacier of considerable dimensions. The mountain descends steeply to the north and on this account as well as the general cloudiness, we could see nothing of the valley of the main branch of the Salmon.

At one o'clock we began the descent, retracing our steps only as far as the head of the couloir and then continuing straight down the west slope intending to explore the region lying to the left or south of the ridge above the terrace at the head of the valley. At about nine thousand feet we were well below the cloud strata and obtained excellent views of our surroundings. To the south and southwest a grand panorama of high peaks and vast snowfields was to be seen. Longstaff, looking in the same direction from a high station near Bugaboo Pass in 1910, says: "The great extent of the snowfields and the general altitude of the range was a surprise." The region which we saw was undoubtedly that at the head waters of Horse Thief Creek and confirmed our later impressions of that interesting section.

But close at hand at our very feet lay a scene of unusual interest and beauty. The snow ridge which yesterday we had seen above the terrace at the head of the valley now resolved itself into a fine cirque of snow peaks clad with glaciers with a charming hanging valley dotted with varicolored lakes nestling at their feet. There were a half dozen of these peaks approximating, we judged, nine to ten thousand feet in altitude, arranged in a semi-circle about the head of the valley, and at the northern extremity of the group somewhat isolated but probably belonging to the range, were two other conspicuous mountains. Of these latter the one farthest to the west was marked by a peculiar snow cornice resembling a pair of wings. Longstaff mentions a "Septet Range" seen by him to the southwest from a point between the north and south forks of Bugaboo Creek. It is possible that he referred to the range upon which we were now looking but this cannot be verified at this time.

A lively glissade brought us down to the park-like hanging valley where for two or three hours we lingered charmed by the beauty of the situation. Here upon a lofty bench (7,650 feet altitude) were scattered a dozen

or more lakes ranging in size from a mere pool to a mile n length, of every variety of colour and aspect. One with deep indigo waters was enclosed by precipitous walls; others were bordered by grassy slopes; others bathed with their greenish waters the feet of descending glaciers. Little hillocks were crowned with larches; a brood of ptarmigan, unaccustomed to men, gave little heed to our presence; a humming-bird flitted past; and alpine flowers were abundant. We basked in the warm sunshine and surrendered ourselves to the spirit of the lovely place, unique in its setting and its peculiar beauty. The stern encircling mountain range seems to cherish this beauty spot in its sheltering arms, from which looking out to the eastward between the sentinel peaks, Ethelbert on the left and its unnamed counterpart on the opposite side of the valley, the eyes ranged down to the lake of our bivouac, followed the winding course of the stream to the end of the valley; then out across the broad plain of the Columbia to the far blue outlines of the Rockies. We lingered here to the last moment delighted with the beauty and novelty of the situation, impressed with the belief that we stood where man had not been before. Then, dropping down the face of the terrace, we reached our camp at six-thirty. Supper and the ceremony of retiring were enlivened by a hard rain storm, but we forgot all discomforts in the thoughts of the day's events.

Breaking camp at five-fifteen the next morning, we climbed out of the valley over the range to the south, where we had been told a "low pass" would be found. This imaginary topographical feature turned out to be a rock ridge over eight thousand feet in altitude, which we reached after a toilsome scramble over rocks and snow consuming five hours from the camp. Lunch was seasoned by a snow squall and at intervals during the day we enjoyed snow and rain alternately. From the summit of the ridge we looked into an unknown valley winding down to the southeast. Opposite us to the south

were several fine rock peaks which ought to prove interesting to some aspiring mountaineer in the future. No trail was in evidence and four hours of hard going through alders and fallen timber completed such mutilation of our suffering limbs as had been left undone in the scrambles of the last two days. Late in the afternoon we reached the trail in the valley of Creek No. 3 and, regardless of the flight of time, boiled tea and consumed all our food reserves. Eight miles farther over a fairly good trail brought us into camp at Deep Lake at seven o'clock where the cook's fried trout, flapjacks and hot coffee agreeably dispelled all reflections of the day's hardships.

This region about Ethelbert will repay more careful exploration. The description, the sketch map and photographs fail, of course, to give an adequate idea of its interest, which all members of our party agreed was equalled by few or none of the regions they had visited. In the absence of a trail up the south fork of the Salmon, it is not easily reached but the old Golden trail could be extended without difficulty to the head of the valley which could then be reached in two days from Lake Windermere with attractive camping grounds *en route*. Previous to our visit the region has been seen apparently by no one save an occasional trapper or prospector. Virgin peaks await conquerors and a new field for explorers offers its attractions. We refrained from bestowing names except to suggest for purposes of identification that the lake at the head of the valley be called Surprise Lake and the mountain opposite Ethelbert, its counterpart except in altitude, be called Mt. Horeb, in scriptural allusion to the stream of water which, seen from the lake below, appears to gush out of the solid rock high up on its face.

On the 29th we broke camp at Deep Lake and returned to Karmax Ranch.

Photo, W. E. Stone

MT. HOREB
From Northwest

Photo, W. E. Stone

MT. ETHELBERT
From the South

II. Climbs on the South Fork of Horse Thief Creek

The expedition up Horse Thief Creek left Wilmer on the morning of August 2nd, lunched at Starbird Ranch, now fire-swept and deserted, expended a lot of energy clearing the trail of fallen timber, transferred the packs from wagons to the ponies a mile or two beyond the junction of the North Fork, and made a night camp about a mile farther up the creek on a gravel flat a little distance below the junction of the South Fork. At this point the valley becomes narrower and the mountains higher and more threatening. A fine waterfall plunging over the cliffs on the opposite side of the creek and the prominent snow peak far up the valley were the noticeable features of our camping place, while all day we had been impressed by the force and volume of the stream whose turbid current gave strong evidence of its mighty sources.

We were awakened the next morning by rain and thunder, a not very favorable portent, which fully sustained its prophecy before the day was over. A ubiquitous filly, offspring of the bell mare of the pack train, had received a deep cut on the breast while struggling through fallen timber the day before and a surgical operation became the first business of the morning. The little animal was hobbled and thrown and received eight stitches at the hands of Mrs. MacCarthy, who thus achieved the standing of veterinarian in addition to other accomplishments. Bill, the Indian packer, surveyed his property and laconically commented, "He learn, be pack pony."

After breakfast four of us were sent ahead with our packs and instructions to locate a camp at the farthest limit of pony transport up the valley of the South Fork, the pack train to follow later. The trail which we followed soon branched off near the crossing of the main creek, led sharply uphill and, after a couple of miles, brought us to an interesting box canyon in the depths

of which the waters of the South Fork almost entirely disappeared from view. At the very head of the canyon is a fine waterfall and the two slender logs bridging the creek at this point seemed a slight safeguard against disaster as we teetered across step by step. To lose balance on this slender bridge would precipitate one into the flooded stream to be drawn into the canyon in an instant. We forgot our own danger, however, in conjecture as to how the pack ponies could pass this point, the stream being too swift and deep for fording. It was found necessary when they arrived later in the day to reconstruct the bridge, which delayed their appearance at camp until late in the afternoon.

From this point on the valley became less steep and more open, with charming vistas through the mountains on both sides. As we came out of the forest across the foot of one of the grassy slides which occur at frequent intervals, we surprised five elk feeding at a little distance up the mountain side and enjoyed the splendid sight for several moments before they took fright and fled. A little farther on we sighted the flagstaff used by Mr. Harnden in his triangulation work in 1913 and nearby found his last year's camp. Flood conditions existed in the valley; frequently the trail was converted into a water course and some of the time it rained, so that we were thoroughly wet most of the day. Finally the trail lost itself in the gravel flats, the valley narrowed to a wooded canyon impassable for horses and we concluded that we had carried out our instructions.

The camp site was located in a fringe of timber just below a fork in the creek where we found traces of former occupancy. Opposite rose Sir Charles and St. Peter and through the gaps between and beyond them could be seen Farnham and Delphine. The centre of attention, however, was the great glacier heading the valley to the southwest. Ten minutes from camp brought us to the

Commander Pk. Jumbo Peaks

Photo, W. E. Stone

COMMANDER GLACIER FROM SUMMIT OF ST. PETER
Looking West and Southwest

curiously marked snout which in the photographs resembles a huge claw reaching down into the valley. The glacier itself leads by a series of terraces and slopes to the skyline, broken by two or three curious small conical peaks, while to the right appears a massive mountain peak with rounded crest and precipitous walls. We somehow got the impression that this was Jumbo Peak, although we could not reconcile it with the map or with any of the published photographs. Later we learned that the Jumbo Peaks are not visible from this valley or from the basin of Lake Maye on the west side of the range. The aneroid at camp indicated an altitude of 5,650 feet. The rain kept up far into the night but the following morning and all of the remaining days of our stay were perfect in weather conditions.

To climb the peak noticed at the western boundary of the glacier was the object of our first day's effort. Warned by the experience of Harnden's party in 1913 in crossing the icefield, we selected a course up the north or left lateral moraine of the glacier with the intention of climbing into the saddle shown in the photograph to the right of the main peak, and then following the rock and snow arête to the left up to the summit. At the end of the moraine we crossed a small branch of the main glacier and attacked the steep rock face of the saddle. Unexpected difficulties developed on account of the steepness and smoothness of the cliff. We headed for a snow gully leading up on the left but found it impassable and were obliged to traverse toward the right over a difficult corner. Falling rocks were a constant danger, one formidable missile whizzing through the air close to us, clearing the whole slope at one bound and burying itself in the snow far below.

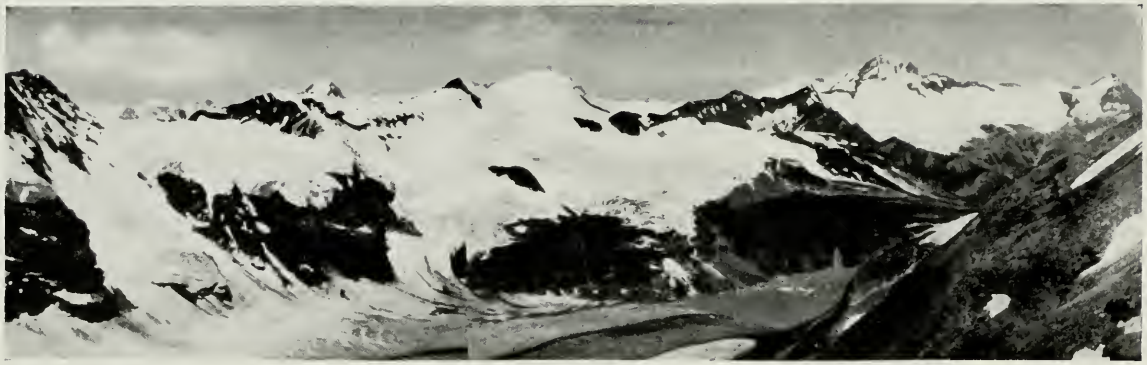
When at last we stood on the sharp ridge of the saddle an entirely new scene burst upon our gaze. We were looking to the westward. Immediately on the left, high cliffs extended across the valley topped by a hanging

glacier; beyond, jagged peaks with snow and ice fields made a long sweep to the north ending in a high peak which we recognized as Eyebrow Mountain; and at our feet a splendid piedmont glacier with a long, plainly marked medial moraine, sloped gradually down into a lake which we identified as Lake Maye. We were, in fact, standing upon the divide between the headwaters of the South Fork and the Main Fork of Horse Thief Creek.

We now made our way easily up a narrow rock arête to the left to the snow line, where, six hours from camp, we stopped for lunch. Looking up the snow slope ahead of us, the summit of the peak was concealed from sight, but, as we proceeded, a fine sharp peak emerged to view toward the southwest across an extensive snow field. Climbing was not difficult, requiring only care to avoid crevasses and possible avalanches, the snow being still soft. At the top of the ridge, we saw the real summit farther along toward the south, which we reached soon after three o'clock, the barometer showing an altitude of 10,950 feet. We built a cairn on the rocks although the snow cornice overtopped this by some ten feet, leaving a record of the climb and the climbers, namely, Mr. and Mrs. A. H. MacCarthy, Mr. and Mrs. W. E. Stone, Miss B. Schultz, H. O. Frind and Conrad Kain. The view in all directions was superb. To the east Farnham, Sir Charles, St. Peter, Delphine, Boulder, Nelson seemed all within arm's reach. Far beyond all of the well known land marks of the Rockies were recognized. To the north Ethelbert was conspicuous. Westward was a confused array of unknown but grand mountains.

Looking across a snowfield of a mile or so toward the southwest, we saw two peaks which we identified as the Jumbo Peaks of Harnden's description, the westerly of which had been in view for some time. Now we realized that the mountain on which we stood was not only a virgin peak but not even christened, a deficiency which we supplied later. It was late in the afternoon but

Lake Maye Eyebrow Mt.



Photo, H. O. Frind

FROM COMMANDER RIDGE
Looking West and Northwest

weather conditions being favorable, we decided to push on to at least the first of the Jumbos. A glissade down the steep western slope of our peak soon placed us on the snowfield which by a smooth and not difficult slope led up to the gracefully corniced summit of the main Jumbo Peak, which we reached at five o'clock, all of those mentioned above participating. There was no opportunity to build a cairn here on account of the depth of the snow. The barometer indicated 11,125 feet. It was too late to attempt the ascent of the twin peak which lay still some distance to the west and which on account of its remoteness from any suitable camping place will be reached only after a long and strenuous effort. We had a splendid view from this point which, with the exception of Eyebrow Mountain, is, perhaps, the highest in the range. Many fine peaks to the far west showed that there still remain in this region splendid entertainment for mountaineers. We left the summit at 5.30, choosing a course over the pass between Jumbo and the mountain first ascended, down across the glacier where we had some difficulty in threading our way through a labyrinth of crevasses, reaching camp without mishap at 8.30, elated with the success of the day which had won for us two splendid mountains and a view of the vast unknown region to the west.

The glacier descending into the valley of the South Fork lies in a great depression on the northeast side of the range and evidently has little or no connection with the Jumbo Peaks. The large snowfield lying at the foot of the latter drains away toward Lake Maye and the Main Fork of Horse Thief Creek. It is doubtful if any appreciable amount of the true Jumbo névé reaches the South Fork. The mountain which we first ascended dominates the South Fork Glacier, bounding it on the west and along the south is a high ridge marked by three small conical peaks; between them a narrow pass connects with the Jumbo névé. Later the fine view of the

entire massif from the summit of St. Peter confirmed the conviction that the glacier and its boundaries are separate from the Jumbo Peaks and the glacier at the head of Lake Maye. The fancied resemblance of the mountain and the lesser peaks to a military formation suggested for them the names of Commander and the Three Guardsmen, and Commander Glacier for the great icefield below them.

The foreshortened slopes of St. Peter culminating in a turreted peak of architectural aspect, rose opposite our camp on the east side of the valley and seemed to offer just the program for the day following the ascents of Commander and Jumbo. Bill, the Indian, out of consideration for our feelings, felled a big fir tree across the creek and we passed over dry shod, but during the day the rising waters carried away our bridge and on our return in the evening we were forced to wade the stream. Crossing a little meadow where the grasses were crisp with frost, we pressed up through the timber near a fine clear stream, coming down from the valley, over which the summit of Delphine could be seen. A game trail assisted not a little in getting through the timber and in a little while we came out into a fine open grove of larches which gradually yielded to dwarfed pines at the edge of timber line. Just beyond we encountered a nanny goat and her kid who did not delay seeking safer quarters in the direction of Mt. Farnham.

A considerable portion of the western slope of St. Peter is covered with loose shale-like slabs which reminded us of the fossil beds on Mt. Stephen. Interspersed were fragments of quartz and we picked up some fine cubical crystals of pyrites. Above this are strata of more enduring rock which give to the upper part of the mountain a characteristic castellated appearance. It was noon before we reached this point (altitude 9,250 feet), where the real climbing was to begin, so we halted for lunch, melting snow for drinking water, for St. Peter is

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SKETCH MAP OF REGION ON THE
SOUTH FORK, HORSETHIEF CREEK
BRITISH COLUMBIA

W.E.STONE 1915

FOLDOUT BLANK

distinctly a "dry" mountain. At 1.30 we put on the ropes and started up through a chimney where we found plenty of loose stones but otherwise not difficult climbing. Coming out on the skyline as seen from the valley, we found the upper part of the mountain to consist of a concave slope steeply inclined to the northwest and covered with snow so as to be impassable. The only approach to the summit was therefore along the arête above the western cliffs which was accomplished without special difficulty, reaching the top at 2.45 p.m., the altitude being 10,750 feet.

The weather was exceptionally clear and we enjoyed fine views in every direction. Close at hand was Farnham with its terrifying precipices quite confirming all estimates as to its difficulty. To the southeast Delphine and a long ridge extending from it to the southwest lay in beautiful detail. We were struck by the interesting appearance of two other peaks on this ridge, one a fine rock tower, and examined them with more than usual interest with reference to the morrow's climb. To the southwest the Commander Glacier with its encircling heights and in the distance the Jumbo Peaks lay spread out before us with map-like clearness, while to the north Ethelbert was seen with great distinctness. We claimed this as a first ascent and a cairn was built in which we placed the names of our party: Mr. and Mrs. MacCarthy, Miss B. Schultz, W. E. Stone and Conrad Kain. The mildness of the day permitted us to linger and the beauty of the outlook claimed our attention until 4.30 p.m., when we began the descent, reaching camp leisurely at the fall of darkness.

On the following morning, August 6th, the weather conditions being still exceptionally fine, we set out with the expectation of making a long day on Delphine, whose snowy summit lighted by the last rays of the setting sun was always a lovely contrast to the dark spruce-clad gap through which we saw it every evening. Following up

the clear creek which we noticed on yesterday's climb, we came after about an hour into an enclosed valley bounded on the north by St. Peter and on the east and south by the Delphine ridge. This valley, devoid of vegetation, its altitude 7,500 feet, proved to be of more than usual interest. The floor was covered with glacial debris which seemed to have been deposited from various directions, one deposit overlapping the other in broad, swirling, plastic fields.

At the head of the valley Delphine appeared as a fine, massive, pyramidal peak, its steep snow slopes broken here and there with bare precipices. The long ridge extending from it toward the southwest again attracted our attention. Midway in its course the fine rock tower noted from St. Peter rose a sheer perpendicular cliff a thousand feet from the glacier, its front marked with horizontal bands, its symmetrical profile culminating in a sharp point like the head of a spear or lance.

At the southern extremity of the range, a beautiful snow peak discharged its glacier into the valley where we stood. This glacier, owing perhaps to the topography of the slope or possibly to the eddying effects of the winds in the great amphitheatre, was pitted in many places with depressions, which filled with brilliantly colored pools of water, gave to the whole an effect resembling that of the "eyes" or jewels in a spreading peacock's tail. We thought it fitting, therefore, to suggest the name of Peacock for the mountain and the glacier, and for the tower-like rock peak the name of Spearhead.

Crossing the glacier, where the recent trail of a bear was visible, we made for a flanking buttress extending to the northwest at right angles to the main ridge. This buttress leads directly up to the last minor elevation on the main ridge before coming to the real arête of Delphine. A sharp scramble up a chimney filled with loose stones placed us on the roof of the buttress, whence

Photo, H. O. Frind

MT. PEACOCK AND PEACOCK GLACIER

Photo, W. E. Stone

LOOKING UP S. W. ARETE OF MT. DELPHINE

we went straight up rock and snow slopes to the summit of the ridge at eleven o'clock, the barometer reading 10,400 feet. Looking to the northeastward to the summit of Delphine, the ridge and final arête presented a far more difficult appearance than when seen in profile. Deep clefts, gendarmes, and snow cornices were obstacles which gave us more than an hour of active work to reach the summit, and reminded us vividly of the summit of Mt. Victoria. It was 12.15, six and three-quarter hours from camp when we reached the summit, altitude 10,975 feet.

Delphine peak is not only the highest point in this ridge but it marks an angle from which two wings diverge, one extending to the east and the other to the southwest. The summit is heavily corniced with an overhang to the east and south, preventing an outlook in that direction. We found here no evidence of any previous ascent and constructed our cairn on the rock ridge at the northwest point of the cornice, leaving in it the record of the climb with the names of Mr. and Mrs. MacCarthy, W. E. Stone, H. O. Frind and Conrad Kain. The writer has since been informed that Mr. A. A. McCoubrey, of Winnipeg, and Edward Feuz, Jr., the well known Swiss guide, going in by way of McDonald Creek, ascended the northeast side of the mountain and left a cairn in 1914. That this was not found by our party may possibly be accounted for by its being buried in the snow or it may have been set up on the ridge to the eastward on the opposite side of the snow capping cornice from our position and thus escaped our notice.

The fine clear weather was favorable to observations and photographs but too cool to make a long stay enjoyable. Furthermore, we had now conceived the plan for a complete traverse of the southwest ridge, including ascents of the two peaks, Spearhead and Peacock, and the hour, 1.10 p.m., left none too much time for this undertaking.

Retracing our steps along the ridge to the point of our initial ascent, we continued to follow the sky line, crossing two elevations of over 10,000 feet alternating with snow gullies, to the foot of Spearhead, which, seen in narrow profile, looked anything but inviting. On either side the cliffs fell away precipitously. In many places one could easily sit astride with feet hanging off into space on either side. The character of the rock was very bad and, as we realized, no one had been before us to throw down the loose stones. The conformation of the ridge left us no choice but to go over all of the high points. It was impossible to make any lateral traverses and oftentimes the only resting points on the ridge consisted of balanced rocks. On this account every foot of the climb had to be carefully negotiated, requiring the utmost caution and steadiness. At 2.55 p.m. we reached the highest point of Spearhead at an altitude of 10,500 feet and left here a monument and the record of our names.

Some discussion arose among the party as to whether this should be regarded as a separate peak or not. Conrad decided the matter by saying: "This is a real mountain," pointing out to us its altitude above the ridge, its peculiar conformation and more particularly the topography of the region to the south, where the peak dominates a considerable snowfield and glacier descending into the valley with a lake of peculiar form, which we named Shamrock. This lake, which was quite covered with ice, is the source of a stream which is doubtless a tributary of the North Fork of Toby Creek. One looking up this stream would observe a watershed and glacier hemmed in by an encircling ridge, of which Spearhead Peak is the climax.

Continuing our course over the southwestern arête of the peak, we found the whole slope of the ridge descending rapidly by a series of abrupt benches. On this part of the traverse we continually faced new problems.

In one place it was necessary to lower down with the rope each member of the party singly for a considerable distance. Scarcely was this difficulty overcome when we encountered a genuine Chamonix letterbox, or, as one of the party named it, a "straddle crack," consisting of a perpendicular cleft in the rock, transverse to the ridge, which it was impossible to avoid and down which we had to pick our way by standing astride the opening and using hand holds and steps on alternate sides of the cleft, gradually lowering ourselves to the bottom. At 5.30 p.m. we reached the lowest point in the entire ridge, the barometer indicating an altitude of 9,750 feet.

We now faced the northeast arête of Peacock with nearly a thousand feet to climb and a survey of the ridge ahead told us that it would be no easy task. Moreover, it was certain we could not return by any part of the route of ascent, while beyond the summit all was unknown. We had now been climbing twelve hours, of which more than half had been spent above 10,000 feet and much of the time our strength and skill had been under test. But now we nerved ourselves for the fastest and hardest work of the day. Halfway up the arête we encountered the most difficult passage of the entire climb, a narrow icy couloir at the head of a steep ice slope with perpendicular sides of smooth rock and scarcely room to wield the ice axe in cutting steps. It required nearly an hour to negotiate this brief crossing of a few feet. Beyond it was easy going up a snow slope to the last peak of the day, which was reached at seven o'clock, finding an altitude of 10,525 feet.

We remained here just long enough to take observations, hastily built a cairn leaving the record and our names, and to pick out a route for the descent. Fortunately an easy slope to the south brought us to the head of a long snow-filled valley down which a glissade brought us at tremendous speed and some damage to our clothing, which already had suffered quite as far as

respectability could approve, in the strenuous exertions of the day. In an hour we descended over 4,500 feet, reaching the valley of the South Fork about a mile above camp. By this time it was beginning to be dark and there remained only the unromantic task of wading the creek, floundering through bogs, climbing over fallen timber, until the gleam of our camp fire welcomed us, ending a day's mountaineering full of achievement, of unusual experience and pleasure.

The Delphine range furnished the climax of our climbs on the South Fork, combining a variety of problems, an extent of territory, and a degree of novelty rarely met in a single day. Next to Farnham it is undoubtedly the most interesting and difficult ascent or series of ascents in the region.

We were now content to enjoy a day's rest, having in three successive days accomplished six first class ascents, five of which were of virgin peaks. We regretted the lack of time to explore the glacier at the head of the valley in which the South Fork takes its rise. Mr. MacCarthy climbed one of the foothills to obtain a distant view and found it of no small extent. Its altitude is much lower than that of Commander Glacier, while its conformation and location strengthens the conviction that it is fed by drifting snows from the surrounding ranges rather than by actual precipitation.

On August 8th camp was broken, the writer and Mrs. Stone regretfully leaving the party, which camped a few days on the main creek, climbing Monica, Eyebrow and a virgin peak near the latter, named Birthday Peak in honor of Conrad's natal day. Sally Serena and two or three neighboring peaks were also climbed, the party being favored with good weather and composed of an unusually able personnel.

EXPERIENCES IN THE CANADIAN ROCKIES IN 1915

By J. W. A. Hickson

It was with but little expectation of being able to come
grips once more with the mountains that the writer
oked forward to a vacation last summer. He had been
me out of a season of mountaineering the previous year,
rough the outbreak of the European war which obliged
m to make a hurried departure from Cortina in the
ustrian Tyrol after a couple of minor rock climbs, which
ere to serve as preliminary training to a campaign in
e Dolomites and Switzerland. He had pretty well
signed himself to the necessity of putting aside all
untaineering plans until after the present crisis of
airs, when a fortunate conjunction of circumstances
abled him to start westwards at the end of July, and
e beginning of August saw him at Calgary looking with
peful anticipations at the "old Rockies."

On the average, August is a month of uncertain
ather in that part of Canada; or, perhaps, it would be
re correct to say that from ten days to a fortnight of
e month is usually impossible climbing weather.
rtunately for one who could not choose the time of his
iday, the bad weather had occurred in July—usually
l best climbing month—and thereafter it continued
most uniformly excellent until the first week of
ptember. The shortening of the day, however, after
l middle of August is a considerable handicap on
g climbs, which owing to the lack of huts or shelters

in the Canadian Rockies are frequently unavoidable. This factor caused us an unpleasant experience on one of our climbs.

Preliminary Climbs

I reached Field on August 9th, and on the following day walked with Ernest Feuz into the Little Yoho via the Takakkaw Falls and the Upper Trail, which, as all know who have been over this route, affords the most charming panoramic views of peak, forest, glacier and alp. We camped on the admirable site of the A.C.C. Camp of 1914, which to those who are not acquainted with it, may be recommended as one of the best centres for a number of delightful and easy climbs, and took some exercise next day by climbing the President over the Rock Ridge. This affords quite sufficient work for an initial climb. In a couple of places it is not altogether simple. Reaching the summit a few minutes after 9 o'clock, we spent an hour of peaceful beauty, enjoying the wide impressions and the vast and harmonious visions of the scene; and then, traversing the top ridge which was covered with deep snow, descended on the right over snow and loose rock to Emerald Pass. Thoughts of trying Mount Marpole on the way were fortunately put aside; and instead we hastened down the snowfield and across the much crevassed Emerald Glacier. The snow and ice were left behind about noon, and then followed a tedious descent over scree, shale, boulders, and again over more of each to Emerald Creek. The absence of any trail along the stream makes the couple of miles of descent here very wearisome for those who are not in good condition. The flats at the end of the Lake were reached about 3.30, and half an hour later we were refreshing ourselves with excellent tea at the charmingly situated and admirably conducted Chalet.

On the 13th of August, my most constant climbing companion and guide in the Rockies, Edward Feuz

joined me, and on the following day my brother-in-law, C. B. Waagen, turned up from Calgary, and the trio ascended Mount Stephen, which the writer had climbed ten years before, from the direction of Lake O'Hara. Tedious as part of the ascent is, and trying as most of the descent is, Mount Stephen almost repays you on account of the superb views which clear weather on its summit affords. Our party was specially favoured after what looked like a threatening morning, and we had the great joy of basking in the glorious sunshine and gazing at some of the big peaks—Hungabee, Deltaform, Assiniboine and Douglas—which suggested many pleasurable and exciting memories. How serene Nature presented itself here and how uplifting its aspect above the terrible turmoil and chaos elsewhere on the globe!

Mount Moloch

The following morning, the weather being still very warm and fine, Feuz and I went to Glacier; and the next day saw us in Revelstoke to buy a week's provisions and make arrangements with a packer for a trip up the north fork of the Illecillewaet, the start for which was to be made from Albert Canyon. We were assured that the trail and its bridges were in fair order, and that horses could be safely taken, if procurable. We managed to procure two ancient beasts. After lunching in the last mentioned place at the domicile of a certain Carlsen, whose household seems to have a thorough understanding of these matters and appeared keenly interested in our trip, the party, consisting of Feuz, his brother, packer Peterson, with two horses and myself, started on the afternoon of August 18th and proceeded the same day about 7½ miles up the trail. It was on the whole surprisingly good, the bridges having recently been repaired. The weather was showery, and the wood and brush very wet, and a good camping ground was hard to find, the Selkirks in this respect notoriously

falling far behind the Rockies. We had to pitch our tent partly in the trail and the night was passed not very comfortably.

For a great part of the way up the Valley, the road runs through lines of magnificent cedars and hemlock, which would excite the admiration of the dullest observer. Two miles from our first camping place, we crossed Klondike Bridge, close to which is fair camping ground, of which we availed ourselves on the return journey, and after which the Valley, hitherto very confined and not very interesting, opens out and affords views of some of the distant peaks and snowfields. We pushed on to what is strangely called "the Farm" (about 3,300 feet), which to one of the party at least proved a great disappointment. It is an unattractive spot frequented by porcupines. Here we rested, and indeed had to rest for some two hours, in the interests of a thirty-year old horse which appeared unlikely to make the remainder of the journey if we didn't. On the way we had obtained an excellent view of the very striking Fang Rock, still unclimbed, on the west side of the North Branch. It was our intention to try it on our return, but we were now anxious to reach as quickly as possible our objective, Mount Moloch, the aim of several previous mountaineering attempts, and now again as we had heard at Albert Canyon the goal of a rival party.

After some five miles from the Farm, one reaches the second of the two large tributary creeks which flow into the main torrent from the west, and "up its narrow valley a grand glacial amphitheatre surrounded by precipitous walls and occupied by wide confluent ice streams could be seen through the trees."* At the head of this valley

*Howard Palmer, Exploration in the Selkirks, chap. XX. Mr. Palmer's careful description of the valley of the North Fork, and Mr. Sissons' sympathetic article in the A.C.C. Journal, vol. V., pp. 34-43, relieve me of entering into details.

on the left lies Mount Moloch. We camped in view of both valley and peak on the trail, which at this point runs several hundred feet above the North Fork. We were now about twenty miles from Albert Canyon, and at an altitude of approximately 5,000 feet.

We intended, of course, not to lose any time in trying a contest with the peak, and had determined making a side camp as near to its base as possible; but uncertain weather next morning, August 20th, deterred us making an early start. While at breakfast about 7 o'clock, Edward Feuz, who had been eagerly scanning the mountain with his glasses, caused some excitement by informing us that he saw a party of three men crossing the upper moraine at the head of the lateral valley, and making for the lower snow on the northeast side of the peak. The party, who provided us with this experience rare in the Rockies, turned out to be Mr. C. B. Sissons, an earlier visitor to and admirer of the valley, and two friends from Toronto, of whose intentions we had heard rumours. We watched their progress intently for the next hour, during which they appeared to advance at a good rate. After losing sight of them for a while, we again saw them very clearly about 10 o'clock on the upper glacier approaching the higher rocks on the north side of the mountain. Again we lost sight of them until towards 1 p.m., when we saw one of the party on the top of a lower snow peak, of which it was impossible for us to tell whether or not it formed an arête continuous with the main massif of Moloch. If it did, the peak was assuredly theirs. As we learned afterwards, it did not afford an accessible approach to the summit, but in the meantime I lost a bet with one of the guides over it.

Having watched our rivals with varying feelings as long as we could, we set about completing our own preparations for making a fly camp up the side of the valley. Carrying two days food, a blanket each, and a

small tent, the guides and myself left the packer to look after the horses and the remainder of the camp material. After a quick descent towards the main stream and crossing it by means of a little manœuvring, we had to struggle with alders, which were succeeded by heavier timber, and then alders again. Nearly three hours were spent in reaching a camping ground at the side of the black and dirty torrent which pours down from Moloch Glacier. Mr. Sissons' capacious tent was nearby, admirably pitched on a small tongue of land commanding a fine view of the little valley and the precipitous northeastern wall of Mount Moloch. Our expectations of seeing him and his friends the same evening were not fulfilled.

The glacial torrent was high and very strong, and it was obvious that even in the morning it would not be easy to cross, as would have to be done since we had decided to attack the peak on the southeast side. Consequently after the tent was brushed, we looked round for a conjunction of suitable crossing place and suitable tree, and were lucky to find the latter right on the edge of the bank, and at such a place that when it was felled it lay across the stream conveniently high above the water and held fast by the further bank. The night was very cool and the air very damp, and being without my sleeping bag, and having far too few blankets, I scarcely slept, and felt fatigued when we started out next day.

August 21st opened favourably, and we set out at 4.30 o'clock, crossed the stream by our tree bridge, and after a few minutes in the alders reached shale and rock, over which we ascended to steep grassy ledges covered at places with nasty and impeding scrub and bushes. These afforded unpleasant work for about an hour, after which we came out on a grassy knoll and thence ascended over heavy boulders and terminal moraine to a glacier, fairly

dry but considerably crevassed. On the glacier we roped, and working our way without any difficulty across the ice, reached a snowfield on which we were able to advance more rapidly. Unfortunately, owing to wide crevasses, we could not make straight for the base of our peak, but were obliged to describe a wide semi-circle to the left, which cost us about an hour's time. Thereafter we swung to the right, and by carefully turning several large holes and crevasses, gained some lower outcropping rocks beneath the southeast face of the mountain. Here we rested at 8 o'clock, and partook of the usual second breakfast.

Further snow intervened between this point and the base of the main massif, which we approached on the southeast. The peak from this side bears a certain resemblance to Sir Donald seen from Glacier. Its sides, however, are steeper, more ledgeless, and offer but few decent hand-holds. Our ascent was much slower than we anticipated, I being hampered through lack of rope-soled shoes, heedlessly left behind, which lend a certain lightness to your body, and enable you to step confidently on almost imperceptible ledges on perpendicular cliffs, so that it required almost two hours of fatiguing and really difficult work to reach the main arête. This is very sharp and steep, with much rotten rock, but the going on it was fairly easy for a time, until a steep buttress was reached which forced us to traverse leftwards. The traverse brought us to a couloir by the side of which we ascended for several hundred feet; then a sharp traverse to the right led again to the arête, which, steep and narrow as it was, we followed to the first summit at 12.30 o'clock. Just immediately below this, there is a smooth and difficult nose of about fifteen feet to overcome.

Mount Moloch is really a twin peak, and there being no stoneman on either of the peaks, we drew the correct

inference regarding Mr. Sissons' attempt. Although partly prepared for it, we were still a little disappointed to find that the higher peak of the two (about 100 to 150 feet higher than the point we were on), lay at a distance of about a quarter of a mile, and was approachable only by means of an exceedingly narrow and much indentated ridge, the traverse of which in both directions would probably have required at least three hours. For most of the way it would have been a case of only one man moving at a time. The amateur felt very tired, and, not relishing the prospect of remaining out over night on upper rocks or on snow, decided against its being undertaken. We were satisfied in having solved the problem of the route of ascent, and in having reached 10,000 feet; and after an hour's laziness in summit sunshine began the descent, a process which required considerable care and alertness.* Above the bergschrund, the negotiating of which demanded experience as well as caution, steps had to be cut in dirty, flinty ice for almost an hour. Having varied our route it was not so simple a matter as it looked to reach the lower snowfield, and we were not well down on it until 6.30 p.m. It presented a most extraordinary appearance, which had increased as the day wore on, and was now seamed by intensely bright lines of colouring matter which had come down from certain adjacent chocolate-looking cliffs and ribbed it with streams of what looked like tomato sauce. Re-crossing the snowfield and glacier by the route of the morning, we reached the grassy knoll in waning daylight at 7.45 o'clock. A lantern had to be used in getting down through shrub and alder, a particularly unpleasant bit of work in the dark. At 9 p.m. we reached the stream, where we found Mr. Sissons and his companions, greatly

*The views from the summit ridge were neither especially fine nor remarkable, except for two beautiful glaciers in the southwest, which sweep down in most symmetrical fashion towards Mt. Moloch and unite.

Photo, E. Feuz

SUMMIT RIDGE OF MT. MOLOCH

interested in our activities, waiting to receive us with most welcome refreshments. They had found the mountain practically unscalable from the side of their approach.

On our return journey we stopped below "the Farm" to consider what chance there was of having a try at Fang Rock. Exploration of the banks of the North Fork, which was very swollen and almost as black as if it were a coal-dust chute, showed that it would be impossible to ford it, either on foot or by means of the horses: and since there was no chance of making a tree bridge, we were obliged to give up the plan.

Mount Goodsir

After several delightful days spent at Glacier, where Feuz and I climbed Sir Donald by the northwest arête, which was in capital condition, for rope-soled shoes, and which affords the best bit of pure rock climbing I am acquainted with in our mountains, when both quality and length of climb are taken account of, we met again at Field on August 30th, and on the following day went by train to Leanchoil where we joined our pack train for the Ice River Valley. The afternoon of September 1st saw us encamped immediately below our goal, the south tower of Mount Goodsir, of which we proposed to make a complete traverse, it being almost the only important peak within sight of the C.P. Railway which we had not climbed. Much to my annoyance, the packer insisted on camping too low down in the main valley of the Ice River instead of up in Zinc Gulch, which ends at the base of the southwest ridge of the south tower. There was thus entailed on us some 3,000 feet of extra labour on the climb.

Clouds rested on the top of the south tower all afternoon of the 1st, and on the following morning Feuz wakened me with the disappointing news that the

weather was unsuitable for climbing. After a little rain it brightened up, and we set off on the interesting work of reconnoitering the peak. Far up in Zinc Gulch we found the remains of several camps, and an excellent trail running up by the stream on the right hand side. It was not a difficult matter to make out in general the route we should have to take, only the last few hundred feet appearing at all uncertain. We returned to camp early in the afternoon, and had some excellent fun catching the white trout which could be easily counted and watched taking the hook, in the clear water running into the main stream.

Next morning the omens in the shape of weather being propitious, we started at 2.30 o'clock, and crossing the stream issuing from Zinc Gulch made up through the wood on the right of our camp, and reached the aforementioned trail. Following it to the end, we struck to the left and ascended over grass and through light bush to an outjutting shoulder of the southwest ridge of the south tower. The ascent was very simple for a considerable distance, and we were much interested and amused by the antics of numerous goats which allowed us to approach comparatively near. These early hours of fresh energy, of freedom from care and of eager expectation are the best and richest of the climbing day.

At about 9,000 feet the rocks became steeper, and Feuz, who never takes any unnecessary chances, brought out the rope. The only possible source of danger lay in the disintegrated character of the rock which crumbled and fell away under one's attempts to find any hand-holds. At about 10,000 feet we traversed to the left, and went up a little couloir containing ice and snow. This brought us out to the main arête on which we found little difficulty until a reddish colored and almost horizontal line of rock was reached, in regard to which we had speculated a good bit when below. It was several

hundred yards in length, extremely fragile, and, to our surprise, so extremely knife-like in places, that we had sometimes to sit down and cross it straddle-wise. Here only one of us could move at a time, and that too very gingerly. It felt at times as if the whole bridge might give way. Once across it we came to the wall of red-banded rocks which form the summit crest, and skirting these to the right found a practicable route of ascent to the finely shaped summit, which was covered with snow, but did not present any of the striking features formerly noticed by Professor Fay. It was a clear still day, and actually warm on the summit, where three-quarters of an hour passed all too rapidly.

Thus far I think there is little doubt that our route was practically the same as that taken by Fay's and Outram's parties. From here we intended to vary the climb; the new part of the mountain lay before us.

Leaving the summit shortly before noon, we descended by the steep, north side of the arête, on which no difficulty was encountered for the first 400 to 500 feet. Then several prominent pinnacles were met with which barred the way. We tried to climb over the first of these, but were forced to desist on account of the impossibility of finding any decent footholds or secure hand-holds on their perpendicular and crumbling faces. By descending, however, some distance on the left, it was possible to make a traverse and circumvent these obstacles, and thereafter regain the arête, on which we made a fairly rapid descent for 1,000 feet more. The rocks were sharp and treacherous, but not difficult.

When we had traversed the greater part of the main arête, we were tempted to alter our original plan by leaving it for a broad couloir which appeared to hold out the prospect of leading directly down to some upper snow on the west side of the mountain whence

further descent would be a relatively simple affair. After descending some 1,200 feet, doubts presented themselves, however, as to whether it would be possible to reach the snow, and whether there would be any means of escape from a not improbable *impasse*. Such a possibility seemingly presented itself on the right in the shape of a slender ledge under some black cliffs over which poured a regular waterfall of melting ice. We thought it might lead us out of our difficulty, but as it looked risky we in the meantime let it alone and descended several hundred feet further. We looked around in all directions for a solution of the situation, and thought that a way of escape might be provided through a rather difficult traverse to the right and a subsequent roping off from a protruding rock pinnacle. We began the traverse but quickly realized that the eroded character of the rock, the length of the drop, and the possession of only one rope, would render the whole operation an extremely precarious one; and it was even doubtful whether with the utmost exertion we could reach the roping off place at all. We decided, therefore, that there was nothing to do but to retrace our steps upwards for several hundred feet and make another examination of the already mentioned ledge. During all the time down and up these cliffs we had constantly to look out for falling stones, which frequently hurtled past us in unpleasant proximity.

Besides being most unpleasantly wet, the position near the ledge was very awkward. To actually reach and stand upon the ledge involved a both difficult and dangerous outside traverse, below which the rocks fell away very abruptly, and above which the hand-holds were extremely slight and very scarce. Further on the ledge broadened out and might be all right, if attained. It was certainly a case of the first steps counting. I supported one of Feuz's feet in a very slight niche in the

rock, and after several attempts he managed to draw himself around the curved and bulging buttress, but was then stuck until, while hanging on his right hand, he managed with his left to hammer out with his ice-axe a further somewhat precarious foothold. I disliked the place very much, and having made several not very energetic and quite ineffectual attempts to follow, I decided to desist; firstly, because it was not possible for the leader to hold me on the rope if I slipped, and secondly, because we were not certain that the route would lead to safety. Next day Feuz was of opinion that it would have afforded a solution of our difficulties, but under the circumstances he did not urge me to try it. For him to retrace his footsteps was a difficult and risky operation, but by wedging the rope between a jutting bit of rock and the main cliff, and by my supporting his right foot, he was able, after a couple of preliminary essays, to swing himself around to the place where I stood in the line of the dripping water.

To face the remaining alternative of spending a fairly long night on the mountain was most unattractive, but it was unavoidable; for by this time it was 6.30 p.m., and in less than an hour it would be totally dark. The thought of re-ascending the couloir and of regaining the main arête in order to survey the ground once again had to be put aside before we were half way up, owing to failing daylight, and so, making a short traverse to the left, we stopped a little after 7 p.m. on a fairly broad ledge or terrace covered with gravel and stone at an altitude of some 9,500 feet. Here we at once set about scooping away some of the loose stuff with our ice axes, so as to render the ground a little less unsuitable for the extension of our bodies. By 7.30 it was quite dark. And having taken off our boots, put on our canvas shoes, puttees and gloves, and partaken of a little unpalatable food, we tried to induce sleep by stretching

ourselves; but I found it extremely hard to rest owing to the feeling of chilliness which followed on our previously overheated condition, and to the startling sensation of falling over the cliffs whenever I was about to fall off to sleep. We could see the fire of the camp thousands of feet below, which intensified our longing for a bowl of steaming soup or a cup of hot tea. Feuz thought he could improve things by lying on top of me; but though well intentioned, the method didn't work satisfactorily. And for a great part of the night we went alternately through periods of recumbency and all sorts of bodily exercises, having for a time also to listen for falling stones which sometimes bounded down over our ledge. It was fortunately a windless night, and the experience was not so unnerving as it appeared in prospect. Yet it is not one to be repeated light-heartedly. Shortly after 4 a.m. the heavy mists and threatening clouds began to dissolve, and our enforced bivouac came to an end. We continued our traverse along the ledge, and then ascending for some 300 feet, reached the main arête, whence we were enabled to gain the couloir by which we had originally planned to descend. Down this we could make good progress, having only to be cautious about the footholds, and were able to unrope at 6.30. At 8 o'clock we were on the lower moraine; and on our way to camp (where our packer was beginning to be restless over our absence), we passed what was doubtless the site of Fay's and Outram's earlier camp under two fine trees on a grassy island dividing Zinc Gulch from the moraine. The enjoyability of the climb, apart altogether from the disciplinary character of our experience, was marred by the unreliable character of the rocks. For this reason we refrained from attempting the undoubtedly easier north tower.

This was our last climb: for, a couple of days later on our arrival at Field, the expected break in weather came,

and with it the end of the mountaineering season of 1915. Once again the mountains had refreshed my tired nerves, and I had experienced the wonderful joy of alpine life, made up of countless, almost indefinable sensations, "sensations begotten of the changing scenes, the lightness of the air, the transparency of the sky, the scent of the rocks, the solitude which is without us and the peace which is within us, of the sense of height, expectation of danger, the thrill of freedom, instinctive love of a natural life and forgetfulness of all earthly things."—*Guido Rey.*

crags, a trickling glacier crowns the barren precipice with a green fringe of ice. There is majesty and magic in the hills.

Also porcupines; but more of that anon.

We were growing maudlin with scenery when a fortunate dispute arose regarding the period likely to elapse before the companies run a scenic railway to the spot. The pessimist said fifty years; but the others, more sanguine, placed it at five hundred.

That same night, we bivouacked higher up toward the Candle Extinguisher (or the Fool's Cap as it might be called, with small loss to rhetoric and none at all to antiquarians, to distinguish it from others of that ilk). A huge tree protected and at the same time betrayed us, for, while promising to ward off the rain which never came, it delivered us into the jaws of a gormandizing porcupine who left home among the roots that formed our pillow to partake with us of the delicacies of our boots and leather pack straps. I awoke just as he was about to step from our containing log to Bennett's chest. If I had held my peace, I might have seen a good fight. I was an eyewitness, not a reporter. But there, man is human first and intelligent afterwards. Involuntarily I blurted out a "*noli prosequi*," whereupon the procupine offered me his tail to shake and, gentlemanlike, withdrew. They are very modest animals, porcupines. A word to them is better than a blow. But the rescued Bennett turned himself over with his elbow, and made a few laborious suggestions about moderating my conversation in my sleep.

The apex of Moloch is the focus of four ridges. On the south lies a hanging ridge whose jagged contour and isolation from approach render it impracticable. On the east, two ridges unite to form a "Y," the trunk of which leads from the great shoulder of Moloch to the peak. From below, this shoulder seems worthy to be called a

Photo, P. A. W. Wallace
GLACIER VALLEY BELOW MT. MOLOCH

Photo, P. A. W. Wallace
THE TEMPLE OF BAAL

second peak, but photographs taken at its own height from Mt. Sorcerer to the north, show it to be merely the undistinguished end of a long, level ridge which culminates at the other extremity in a perpendicular tower. Prof. Sissons in 1912 had twice assaulted the shoulder unsuccessfully by way of the northeast ridge. Across the stupendous gulf of the "Y," the southeast ridge presented too many points of similarity with its mate to inspire confidence. Remaining attempts by Prof. Sissons were accordingly made upon the west side, where one attack in 1913 petered out in opaque meteorological phenomena, and another of the same year terminated at the jaws of an avalanche-devouring bergschrund. But a reformed bergschrund is always a possibility, and even Selkirk weather must have an occasional Sabbath.

The west ridge, descending steeply from Moloch, sinks into a col between Moloch and a flanking peak which we named Mt. Baal. To storm the face of the col is impracticable. Accordingly, we planned to reach it via Mt. Baal.

Baal is a twin summit down whose broad bosom flows a very steep but singularly regular glacier, broken clean across the middle by a straight and gaping bergschrund. We reached the bergschrund at nine o'clock on the morning of August 20th. Our route, which had entailed the half circuit by glacier of the Fool's Cap, presented no difficulties unfamiliar to any who have ascended Mount Royal in winter by the Côte de Neige. Its scenic attractions are absolutely startling. We retain vividly in mind the apparition of a gigantic obelisk spuming in the torrent of the clouds. That was Moloch, a mile or two away across the angle of the valley. No less spectacular were the interiors of the Temples of Baal, more than palatial caverns hollowed from the glacier, relics of an ancient bergschrund, into which we delved by balustrades of snow. Here the blue of heaven,

rescued from the flat, perspectiveless cupola of the sky lay radiant and carven, embodied in the pure, deep ic of decades. The next traveller will find these halls muc changed, for they move upon a ceaseless voyage toward dissolution where mud and scree conceal the trans formation of royal ice to a smutty vagabond of a strea brawling seaward through the scrub.

The schrund was bound by unattractive, ice-varnishe rocks on either flank. It slashed through a remarkabl steep snow-slope, and therefore the one lip greatl overtopped the other. There were no snow bridges, th walls seemed everywhere sheer, and only in three place did they approach each other. We selected the narrowes point and went to work. Even here, owing to th manner in which one lip overtopped the other, progres would have been obviously blocked had it not been fo the happy juxtaposition of a tapering crest of snow raised wall-like, from the lower side, and a correspondin trough gouged neatly from the upper. Our problem wa to use the wall without destroying it. To clambe straight over and jump would crumble it to piece Moreover, even if the snow did justify its use as a *poi d'appui*, there was no certainty of adhering to the far sid after the jump.

The omens indicated an unpleasant traverse c precipitous avalanche grooves in search of a bette crossing. But the omens lied. Prof. Sissons made hi way into the schrund and slid along to the end of a ledg that brought him almost beneath the ridge and funne He cut a step in the vertical ice across the way, straddle the gap, and then continued to cut steps back and fort mounting straddlewise toward the desired point. A fe feet below the crest of the precarious wall, a firn projection brought the step cut from its surface withi five feet of a final step gouged in the lip of the funne Here Colossus made his final stand, then flung his weig

across, gripped the snow with axe and elbows, wriggled to his knees, and squirmed to *terra firma*.

The only difficulty for those roped behind was to adjust their scarcely adequate limbs to the exigencies of a five-foot span. It is said that the Dolomite guides can stretch themselves. Goodness knows we don't doubt it.

For some hundreds of feet the snow kept a very steep angle. Under certain weather conditions, this climb might prove extremely unpleasant, or even precarious, as, indeed, one party had already found it; but we made it under ideal conditions, finding the snow of such excellent texture that there was neither a tendency toward avalanches nor any necessity of cutting steps. At twelve o'clock, Mt. Baal for the first time felt the foot of an invader.

Baal is part of the Moloch massif, but deserves home rule in the matter of nomenclature. It is separated from the mother peak by a deep col a good (or, rather, excruciatingly bad) four hundred feet deep and a quarter of a mile long. This col, by the way, belongs to Baal rather than Moloch, as we soon discovered. The glacier gives Baal a pleasing character of its own and in marked contrast with the austerity of Moloch. In shape, color, and the matter of raiment, the two mountains are utterly unlike.

Thanks to its middle stature and proximity to a spectacular neighbor, Baal is not easily to be excelled as a point of view. Now, the duties of an official eyewitness, being, as everyone knows, to acquire the maximum of local color with the minimum of inconvenience, necessitated the division of our party on the basis of athlete and aesthete, the former girding up their ropes while the latter picked out some soft rocks with which to facilitate his investigation of the panorama.

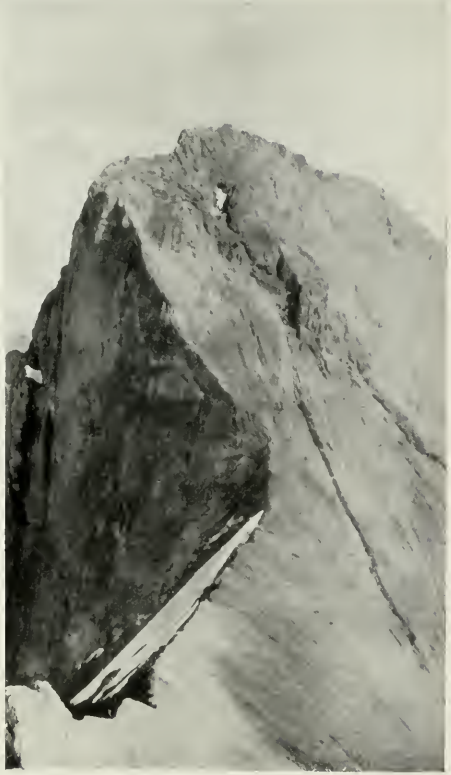
To the right of Moloch's desert cliffs, that is to say, to the south and east, lies a field for discovery in a

wilderness of ice drained by twin glaciers, with a beautiful system of crevasses and moraines. Nearby stands Fang Rock, and, to the left, like more teeth against the sky (molars, in this case) lie Sir Sandford, Iconoclast and Sorcerer. Westward, towards the Columbia River . . . But if I attempted to describe a tithe of what I saw in the white seas fading blue on the shattered horizon, I should merely inspire the bored reader with regret that I had ever been allowed to look upon this thing at all.

We were still a good two hundred feet lower than the summit of Moloch. The advance involved a descent of some four hundred feet over disintegrated rock lying at a hazardous pitch. Then followed a long, level ridge, with a sharp spine and a few notches at the critical junction with the peak, which raised half a thousand feet of presumably heathenish rock with an average inclination of about forty-five degrees. But although there were some very abrupt passages among the lower reaches, there was nothing visible from a distance to annihilate hope.

The athletes made their way clattering, pawing, crawling, over the first few yards of descent. It took them half an hour to get back up again, but they had to come. Baal is not neatly jointed with the col. Selecting a new route, one modelled on a damaged coal-shoot, they allowed themselves to be lowered on the rope over a preliminary bit of nastiness that merely introduced the unpleasantness to follow. Slithering scree coated everything. Odd finger-holds and inch ledges were as jewels to the touch. Once Mr. Bennett found himself hanging by three fingers of one hand. Through lack of anchorages, relaying was impossible, and rare were the opportunities of recovering a slip. Climbing under such circumstances is as much a matter of nerve as of agility and cannot be hurried. Two o'clock was striking in the

Photo, P. A. W. Wallace
MT. MOLOCH



Photo, P. A. W. Wallace
MT. MOLOCH FROM BAAL

towns beyond the ranges when the climbers reached the far end of the col.

The nature of the place was soon apparent. The notches seen and feared from Baal, proved to be divisions between four or five camels, or gendarmes, too sheer and rotten for a practicable traverse. Investigation of these cleverly contrived outworks of defence, forced from the party the reluctant admission:

"It may be possible, but it is not mountaineering."

These camels are the keys to Moloch. If they could be passed, as they probably could be under favorable conditions of time, there is at least an even chance that nothing baffling would be encountered on the slope beyond, although the ridge itself, owing to occasional perpendicularities, would have to be forsaken for the less inhospitable face of the cliff. The route would be to angle across to the right into the couloir beneath the little patch of snow.

Roughly speaking, there are now two routes of ascent in sight: via Baal on the west, and via the shoulder on the east. Prof. J. W. A. Hickson, with Edouard and Ernst Feuz, reached the shoulder on the day following our ascent of Baal, thus bringing the total of attempts to six. They attained an altitude about equal to that of Baal, and brought back no very sanguine report of the prospects between the shoulder and the peak. A comparison of the two routes makes it evident that while the camels on the Baal side present a serious obstacle, in the other quarter the interminable reaches of untrustworthy rock, added to the uncertainty beyond the shoulder of avoiding precisely the difficulty that baffled progress on the west (bad plumbing at the joint), render climbing both precarious and disappointing. "There is nothing worse in Canada," remarked Ernst Feuz at the end of his sixteen hours climb. For scenery, Baal is *the* ascent of the neighborhood. As a way to Moloch, it will

at least allow the climber to come to grips with the final peak unexhausted. To scale the mountain from either direction, it would appear advisable to spend a night on the rocks. This could easily be accomplished on the Baal side, either at the col, or lower down at the Fool's Cap.

Sissons and Bennett made their way back in about two hours to Baal, where a cairn had been erected during their absence. Having plenty of time to spare, the eyewitness perversely neglected to place any records in the cairn, but the field glasses of Prof. Hickson, who watched our operations from the valley, will corroborate the details here set forth.

At 4 p.m. we struck for home. Some careful relay work brought us over the sun-loosened snow to the bergschrund, which we cleared with a leap, and by dark we reached our bivouac among the balsams.

Next day, we went scouting for a feasible route, a sort of forlorn hope, by the southeast fork of the "Y" on the east; but the report which Prof. Hickson brought that night from the shoulder was not of a nature to encourage new enterprises from that quarter.

Accordingly, on the following day, we shouldered our packs and struck for the Waverley Road, which we followed northward to the pass. On August 23rd, Sissons and Bennett put in a long and interesting climb upon Mt. Sorcerer (10,410), the account of which is here given in Prof. Sissons words:

"We traversed the whole length of the southeast ridge. First occupying a peak (about 9,000 feet high) on the southeast of the ridge at 9.30, we journeyed till 4 p.m. up and down along an arête whose excellent rock (sometimes very steep and in one place super-perpendicular) contrasted favorably with that of Moloch. Only near the top did we take to the snow, where we had to cut a few steps. At about 1.30, we passed a cairn, doubtless erected by Messrs. Palmer, Holway and

Butters on the little peak mentioned on page 289 of Mr. Palmer's book. There were records (damaged by the water) in a bottle. We descended by their route of ascent."

Meanwhile, the eyewitness, after eyewitnessing some of the numerous waterfalls for which the Waverley Road will one day be famous, returned to camp and concocted from the commissariat remains some gravitative bannocks with which to lay to their rest the peak-hunters "home from the hill."

The twenty-six miles (avoirdupois) to town, we accomplished on porridge and cocoa. On the train, an American naval officer gave us a synopsis of ten days' war censorship, and elderly female tourists returning from the Panama Exhibition buttonholed us, as eagerly as entomologists do butterflies, to ask: "Are you the people that climb mountains?"

As the Million Guide has pathetically put it:

"Ze whole trip and ze whole choy vas over!"

ASCENT OF MT. BLACK DOUGLAS

By C. A. Richardson

After a delightful two days' stay at the camp on the Red Deer, we (J. C. Oxborough, Christian Jorimann and the writer) prepared for our attack on Black Douglas. Our plan was to skirt the north slope of Oyster Mountain and bivouac as near the Douglas as possible.

Leaving camp at 4 p.m. with our packs, we circled the lake and entered the woods on the east. Our way was fairly easy at first, but increased in difficulty as we continued. Windfalls and large boulders were numerous. We decided at last that we were keeping too far up the slope so worked our way down and at last came to good going in a grassy plain. We were fortunate in finding the trail blazed by the party who had made the climb a few days previously. By following this trail we at length came to a higher alp almost parklike in appearance.

A passing thunderstorm had been drenching us for the past hour and we were wet to the skin. The storm was clearing as we entered the open valley and we took time to light a fire and dry our clothes. We then continued to the head of the valley and found a delightful camping place a few rods from the glacier leading to White Douglas.

Supper and the preparation for the night occupied our attention until 9.30. We made our beds under a large spruce and were quite cozy. It was the intention to rise at 3 a.m. and start at 4, but owing to our fatigue and the comfortable beds we slept until 4.

From the site of our bivouac, we had but a few steps to cross before we came to the slopes of the mountain. We could easily trace complete strata from our camp

site at a grade of perhaps sixty degrees to the snow-capped peak.

To the west of the Douglas peaks there is a beautiful amphitheatre with the White Douglas glacier on the south. This glacier seemed of easy gradient and made a splendid approach to the cliffs of White Douglas. We had splendid views of the latter peak from our bivouac and as we climbed the north peak we could see more clearly the difficulties to be overcome in a climb of the southern peak. Sheer cliffs rose to a great height, in many parts overhanging and with scarce a crack or crevice visible. We concluded that two hours from our camp would easily bring us to the base of the cliffs and decided that it would be an ideal spot from which to make an attack on the White Tower.

Leaving the bivouac at 5 a.m. we crossed to the foot of a cliff that rose from a height of a few feet at the base of the mountain to many hundreds towards the top. The going was very good close in to the base, and the slope not too steep. It was a grind, however, and after about two hours of it we were not sorry when Christian said we would try a rocky gully that opened up directly from the scree. It was from four feet to six feet wide and seemed to come out on a wide ledge some hundreds of feet above.

The morning was cloudless and quite warm and we had made no preparations against the cold. When we entered the gully we found the temperature considerably lower than was pleasant and although the air was quite calm in the valley there was a strong cold draught blowing down the gully. The first part was fairly easy, perhaps one-third the way, then we came to solid black ice filling the gully from side to side and quite smooth.

Christian began step-cutting and Oxborough and myself had the pleasant experience, for the next hour, of being showered with ice-particles. To make matters

more unpleasant, we were continually passing under little streams of water from the overhanging walls above. It was not an easy matter to dodge these, as the ice steps were none too large and one had to be careful of one's balance. However, everything must have an end, and so with the gully. The ice gradually finished off to a sharp point with just space enough on one side for a person to squeeze between the ice and the rock wall.

Here we had our first real thrill. Christian climbed on the point of ice to negotiate a rock wall just above. As he put his weight on the point a large piece broke off and started slowly down the slope. It blocked the gully from side to side and the writer was directly in its path about ten feet below, still standing in the ice-step. Christian shouted to me to come up quickly, but, alas! I was in the last step next to Oxborough and could not move. Oxborough by this time had wedged himself between the ice and the wall and as the large piece of ice moved down it caught him across the chest and jammed him to the rocks. He served as the necessary trig, however, and its progress stopped. I did not envy Oxborough in his position, but he seemed much concerned about me. After a few seconds he was able to move his foot from the last step and I moved up to it. This brought the loose ice about my shoulder. I crouched and wedged in as well as I could to the cliff and then called to Christian to start the ice moving. This he did and the ice sliding swiftly, one edge brushing my shoulder, went crashing down over the spot where I had been standing a few seconds previously.

We had now come to a rock wall about twenty feet high with a narrow ledge at top. Christian started on the climb and found after getting part way up that he had no grip in his hands, as they were by now numb with cold, and there he was, spreadeagled on the rock-face. He could move neither up nor down. If he dropped he struck the ice and followed the broken fragment. The writer

Photo, F. O' N. Fisher

THE BLACK DOUGLAS
From Hatchet Lake

Photo, F. O' N. Fisher

T E WHITE DOUGLAS
From the Black Douglas

scrambled over to Oxborough and tried the cliff from the outer end. On touching the rock I found that the first joint in my fingers had no feeling whatever and I hardly liked to attempt the climb. Something had to be done quickly, however, as Christian was calling that he could not hold on much longer, so I made the attempt. The climb was fairly difficult with one's hands in good condition, but as mine were, it seemed hopeless. Christian's condition by this time was serious and I must have been assisted by the excitement of the moment, as I soon found myself on the narrow ledge above. How I did it I do not know. I moved directly over Christian and stretched full length on the ledge, reaching my left arm down to him, while my right was anchored securely about a pinnacle of rock at the back of the ledge. By grasping one another's wrists a fairly safe grip was secured and Christian was enabled to get his other hand over the square edge of the shelf. I then pulled with all my strength and his other hand was clasped over the edge. He was then able to reach the pinnacle of rock and slowly drew himself on to the ledge. Two such thrills as we had experienced in the last few minutes were quite enough for one climb.

I took the rope from Christian's rucksack and passed the end down to Oxborough after drawing up our own sacks and axes. I enjoyed the sight of Oxborough with benumbed fingers essaying the climb. I took care to have the rope well anchored and with this support he soon made the ledge. We then moved along the ledge through a natural doorway onto a broad flat surface about thirty yards square. It was now nearly nine o'clock. The sun was quite bright and the flat well sheltered from any breeze. We stretched out and for half an hour soaked in the sunshine and heat and enjoyed a second breakfast.

From this flat the going was easy and we soon reached the snow-slope on the northwest side. Here we found

the steps of Ernest's party still in good condition so we made good time to the summit, which, to our great disappointment, was shrouded in mist. We remained on top for over an hour and were rewarded at last by having a magnificent view to the south. Close at hand, seemingly only a stone's throw away, was the square tower of White Douglas. We examined it as well as we could, and Christian said he would like very much to attempt it if we could remain another day, but as the main camp was breaking up, we could no do so.

The descent was easy except in one or two places, where we had to cross wet slabs of rock. The strata all sloped outwards at an angle of about thirty degrees and as the snow was melting rapidly they were wet and slippery.

We arrived at the "Bivouac" at two p.m. After a lunch with a plentiful supply of tea we shouldered our packs and returned to the camp at the lake, arriving at four p.m. Another lunch, and then we accompanied the remainder of the party back to the main camp. A soaking rain added pleasure to the latter part of the trip. A good dinner awaited us, and then bed and a good sound sleep.

FIRST ASCENT OF MT. EDITH CAVELL AND EXPLORATIONS IN THE MT. LONGSTAFF REGION

By E. W. D. Holway

In the summer of 1915, Dr. A. J. Gilmour and the writer first spent sixteen days at the Mt. Robson camp, going to Moose Pass and returning over the glaciers, climbing Mt. Mumm and other minor peaks and getting into shape for more strenuous work. We then returned to Jasper, hired a man to help us pack and on July 31st started for Mt. Cavell, then known locally as Mt. Geikie. We had a horse take our outfit to the end of the trail above Boulder Creek (Geikie Creek), about half way, and then back-packed. We camped the first night on the creek, directly below the end of the trail, having a great tangle of burnt timber to get through. Early morning found us on our way up the creek, which we followed for some distance, and then took an upward route straight towards the low place visible to the west of our peak. Our packs were heavy and we were ready to camp early in the afternoon, but there was no water on the mountain side, and we were compelled to go on until just dark when we came to a splendid spring at the west end of the beautiful, broad, grassy pass on the south, leading over to the Whirlpool River. In the morning we set out to find a route up our mountain. We climbed the peak joining it on the west and found a narrow ridge connecting, over which we passed. We climbed to within 600 feet of the summit that day but heavy clouds surrounded us and there was a rain approaching, so we descended by the cliffs and scree slopes on the south. On the third we explored the pass, with its streams and pretty little lakes, and on

the fourth moved camp half an hour nearer the base of Mt. Cavell. On the morning of the fifth we were off at 4 a.m., reached the cliffs at 5.10 and the west arête at 6.15. Here we had to wait forty-five minutes for the clouds to blow away. There was a wide snow slope leading to the south arête but we found this was rather thin snow on hard ice and with only two, a slip would have sent us over the cliffs; so we decided upon the narrow west arête, which had a heavy cornice of snow projecting over the great north cliffs. The conditions were perfect. The snow was frozen hard to the depth of an inch, so that it was nearly continuous step cutting, very steep in the upper part. Only for a short distance did we find any ice, but to avoid it we had to keep well out on the cornice. The Doctor being in the rear and having plenty of time to look down the north face made suggestions occasionally about getting further away from the edge. There were no difficulties. Steady cutting brought us out on the top ridge at 10.03. From here it was a great snow pile, up and down, for the entire length of the top. At 10.15 we were at the middle point, which appeared to be the highest, and at 10.30 at the east end. The Doctor had carried a jointed flag pole strapped on to his back and we planted it on the middle peak with small black and white flags. The view up the Whirlpool River with its great glacier was particularly fine. At the source of the east fork of Boulder Creek were two pretty lakes and the main creek came from glaciers and a hanging valley with lakes and fine rocky peaks. As we had to back down our stairway, one at a time, we left at 11.30 and reached camp at 4.10 p.m. After a day's rest, we climbed to the summit of the peak west of Cavell, visited the lakes at the source of both forks of the creek, went up the valley on the east of Cavell and on the 11th returned to Jasper.

Outfitting again we took the train to Croydon, and on the 19th started up Horse Creek. We took the

Photo, E. W. D. Holway

THE SUMMIT OF MT. EDITH CAVELL
(Formerly Mt. Fitzhugh)

Photo, A. J. Gilmour

MT. LONGSTAFF
From the North Arête

southeast fork and went up a hanging valley at the end of the main valley, on the northeast. This had an easy looking pass so that we left lakes and lovely camping spots, expecting to find a resting place on the other side, but when we arrived at the top we looked down almost perpendicular cliffs and had to return to the lakes. Exploring for a few days we found that the only way out was over a glacier on the east of the valley and down cliffs on the other side. Our man was not used to glaciers nor taking a pack down such places, but he was game, and we let him safely down with our 100-foot alpine rope. The upper ends of all these valleys are very lovely indeed, with fine meadows, timber and lakes—ideal camping places. At the head of Horse Creek is a great glacier with several peaks about 10,500 feet, and between Horse Creek and Small River, on a branch of which we now were, is a very fine glacier-covered mountain around 10,500 feet.

Following down the creek we came to the main valley of Small River and camped under cliffs 3,000 feet high, over which many square miles of ice discharged and down which came many waterfalls. We explored this glacier, made the ascent of the two peaks south of Mt. Longstaff and on September 3rd found a way up the cliffs to the northwest arête of that mountain. We saw that we could descend some distance over the east glacier and reach the face opposite Mt. Whitehorn, from where the ascent could be made. The way was long and we had seen the upper part was all ice. The arête we were on was steep, the rocks were rotten and bad and could not be followed for any distance, but there was a fine, very steep streak of ice leading nearly up. Unfortunately we decided to try it. It was much steeper than we expected and it was all hard, blue ice. It was very difficult to make steps and after working hard for many hours we saw that unless we spent a night on

the ice it was necessary to quit. We were, perhaps, within 200 feet of the top.

We arrived at camp at 9.30 p.m., pulled our man out of bed and had a feast. Alas! we nearly finished the grub at that meal. An investigation in the morning showed only enough for breakfast and a slim lunch. There was nothing to do but get out. We followed Small River to a cabin on the Fraser, where we found flour and potatoes, crossed in the morning to an old construction camp, where there were just spikes enough to build a small raft, upon which we piled our things and floated down to Croydon, where we had left our trunks.

There is a wonderful field for exploration, especially in the big bend of the Fraser.

SCIENTIFIC SECTION

THE BUILDING OF THE TORNGATS

By A. P. Coleman

Most people think of the mountaineer as simply an adventurer or athlete who enjoys a sport full of hardship and danger in which he matches his physical prowess against the difficulties of scaling cliffs, crossing glaciers and climbing peaks in the mountains. There is no doubt keen joy in the sporting side of mountaineering, in striving and overcoming difficulties, and above all in conquering new peaks; but to many of us the scientific interest of a mountain region presents quite as great an attraction as the manly sport of climbing itself. The two go naturally together. In many parts of the Rockies, for instance, one can hardly miss seeing that vast blocks of an ancient sea bottom have been tilted up with their edges in the sky or, in other places, that five miles thickness of sediments have been crumpled into folds, and that both have been sculptured by forces still at work into their present splendid forms.

In the comparatively youthful and simple Rocky Mountains many chapters of geological history may be read as one climbs or when one halts for a rest; but in very ancient mountain regions, such as the Laurentides of Eastern Canada or the Torngats of Labrador, the problems are much harder to solve. They may require much patient field work before certainty is reached and many of their features may remain obscure after the most careful study. In the Rockies one often sees at once how harder structures resist decay and stand up as ridges and

peaks. In the Torngats this is generally not the case, and the original strength of the rocks has very little relation to the present mountain forms.

The rocks of Labrador are mainly gneiss and schist, often sharply folded and usually steeply tilted so that one walks across their worn edges. After a time one finds that the gneisses bend round into great oval areas, usually with granite in the middle, and presently one grasps the idea that the present surface represents the ground plan or foundations of great ranges of mountains, once probably higher than the Rockies, afterwards worn down to mere stumps or even smoothed off to a plain not far above sea level. A vast length of time was required for this destruction, but the process was complete before the earliest fossil bearing rocks were formed, for in places we find marine Palaeozoic rocks resting on them.

How long the plain remained near sea level we do not know, but ultimately its margin, along the Gulf of St. Lawrence and the Atlantic Coast, was lifted up thousands of feet above the sea with an inward slope towards Hudson's Bay and Ungava Bay. Apparently as this elevation took place great faults broke across the original Archaean plain and the eastern parts slipped below the sea, leaving the present mountain regions standing up with a bold escarpment facing the north Atlantic.

The Torngat mountains began then as a tableland with a steep face eastwards and a gentle slope to the west. Where the old surface of the tableland is still preserved it is gently rolling with low rounded hills and shallow depressions between. Before the Ice Age the plateau just mentioned rose directly above the sea to heights of at least from 4,000 to 6,000 feet.

During the Ice Age, unlike all other parts of Canada except the Klondike, it appears never to have been covered with ice, though local glaciers formed in some of the

Photo, A. P. Coleman

LOOKING SEAWARD FROM NEAR SUMMIT OF MT. TETRAGONA

Photo, A. P. Coleman

CIRQUES AND U VALLEYS
Near Nakvak

hollows and especially in the river valleys, the drainage taking the solid form instead of the liquid.

The great Labrador ice sheet which overwhelmed Ontario and Quebec and pushed far south into the United States probably reached the western slope of the Torngat plateau but had not depth enough to override so lofty a barrier.

The numerous small glaciers on the seaward side carved down their beds into cirques of various depths and drained into the longer and more efficient glaciers, which sliced their way completely through the tableland in places, forming the deep troughs now occupied by the numerous and splendid fiords so characteristic of the coast. Nakvak fiord, for instance, has been shown by Professor Daly to have a depth of more than 100 fathoms in places and a length of 35 miles.

The small cirque glaciers have left very steep walled basins and short valleys, and at many points they carved their way so far back into the tableland as to come close together, leaving sharp edged ridges like Mt. Razorback, or even advanced until they met, destroying the wall between two valleys and leaving bold peaks and isolated mountains. This is especially true near the sea coast. As one goes toward the interior the carving action is less and less evident and the mountains grow broader and have dome-like surfaces, though they are in places separated by the steep walled and deep valleys cut by the main glaciers. These main lines of ice drainage may have afforded outlets to the sea for the great ice sheet of the interior of Labrador, in the same way as the interior ice of Greenland pours out between the mountains at the coast and discharges icebergs into Davis Strait.

It is evident then that the Torngats are just the remnants of a pre-glacial plateau eaten into by local glaciers in various directions. Their vertical cliffs and ragged edges, their peaks and gendarmes, are not caused

by the resistance of harder rocks when weaker beds around were destroyed by frost and weather, as in the Rockies, but are the almost accidental results of the irregular gnawing of glaciers. They are monuments to the work of ice as an agent of destruction and their peaks and cliffs have no relationship to the ancient mountain structures of the gneisses and schists out of which they have been carved.

The process of carving is not entirely finished, for there are many small glaciers still at work in the higher cirques and valleys. They do not seem to be very active, however, and frost and running water are now more important agencies. In the higher valleys frost is quarrying blocks from the walls and building up a talus, masking the handiwork of the vanished glaciers; and torrents are cutting canyons in the bottoms of the valleys destroying the beautiful U-shape which they had in the beginning. The summits of the higher dome-shaped mountains, which were not ice covered, are perfect seas of blocks of all sizes, loose and more or less weathered but evidently resting on their parent rock, gneiss on gneiss, diabase on the dikes of diabase from which they came. Here and there a small snowfield hides them but it is not in motion and does not disturb the rock fragments beneath. These fields of loose, unshaped blocks above the level of flowering plants and often devoid even of mosses are the image of desolation, and a drearier landscape cannot be imagined.

SOME METEOROLOGICAL PHENOMENA OF THE CANADIAN ROCKIES

By A. O. Wheeler

All mountain regions exhibit interesting meteorological phenomena, owing to the fact that they are subject to an abnormal amount of precipitation and are storage reservoirs for it in the form of vast bodies of snow and ice. This is particularly noticeable in regions that lie in the more northerly latitudes, where the precipitation is heavier and the varying change of seasons extends over a longer period. On such account the Canadian Rockies are of special interest.

Many of the features there presented to the observer are, in large measure, due to the warm winds created by the climatic conditions of high altitudes. In the Rockies they are known as "Chinook" winds, in the Alps of Europe as "Föhn" winds. In Canada the origin of the "Chinook" may be briefly described as follows: Winds from the Pacific Ocean travelling eastward across the continent are saturated with moisture. As they ascend the western slopes of British Columbia, the air is cooled and deposits moisture, rain at low levels, snow at higher levels. Sweeping over the high summits of the several ranges and through the passes, the air sinks rapidly and, coming under greater pressure, is heated, producing the warm dry Chinook wind noticeable in all wide valleys between the ranges and, in a much greater degree, on the western prairies of Alberta.

This process accounts for the very heavy snow-fall on the Gold and Selkirk Ranges, the first two high ranges met with in the journey from the Pacific Ocean across the central portion of the continent. It is here that the bulk of the moisture is precipitated, and what is left is

deposited on the highest or Main Range, yielding a considerably less precipitation and, consequently, a lighter snow-fall. Further north the Selkirk effects are found on the western slopes of the Main Range, where that range more nearly approaches the Pacific Coast line.

These warm winds produce many and varied changes of temperature, and are responsible for the magnificent cloud effects, seen in the spring and fall, that furnish such a wonderful setting in landscape photography of the region. They are also responsible, to a considerable extent, for the fantastic snow shapes, the result of frequent thaws followed by sharp frosts and high winds sweeping over the summits, that are seen along the mountain crests and ridges and in the valleys where snow lies well on into the summer months.

High up on the mountain slopes, far above the line of vegetation, the climber cannot but notice the beautiful sprays and branches of ice seen on the rocks, like frost designs on a window pane, and the groups of columnar icicles that hang as pendants from cornices and line cliffs and precipices. Wonderful pendants are also seen, like great ice teeth, along the lips of huge crevasses on the glaciers, extending far into their depths.

In the woods, particularly in the Selkirk Range and in the Main Range north of the Selkirks, the snow creations are of truly magnificent conception. Snow mushrooms shape themselves upon the stumps and enormous snow fungi gather on the tree trunks. The trees, themselves, become so loaded with snow that they look like white columns and give an idea of fairyland that can only be had through Nature's own handiwork. Taking into account the fact that the average annual snow-fall at Glacier House on the Canadian Pacific Railway, near the summit of the Selkirk Range, is thirty-five feet and has been known to reach to fifty feet in one winter, the results referred to are not to be wondered at.

Photo, A. O. Wheeler

A SNOW MUSHROOM

Glaciers

The subject of glaciers is one of such importance and has such a direct bearing upon nature, cause and effect in the destruction and construction of terrain that it has been classified as a science of its own, dealing directly with the action of glaciers and icebergs under the name of "glaciology." In the first place, it is dependent upon climatic conditions: temperature, precipitation, freezing and melting, but the subsequent action is so varied and far-reaching that it has been classified as above. Its many phases are too intricate to be dealt with in an article such as this and it is here only necessary to outline the general principle.

The heavy precipitation of mountainous regions falls at high levels in the form of snow, which fills the rock basins between the various summits and crests. The great weight of these enormous masses compacts the under layer into granular ice, covered on the top by the recent winter's snowfall. Thus, the beautiful stretches of pure white, illuminated by sunshine or darkened by passing cloud shadows, which we designate snowfields, are in reality bodies of ice, filling up the hollows, massing on the ledges and clinging in crystal cascades to the mountain sides.

Were the process of filling up to go on indefinitely, we should, in the course of time, find that the highest peaks would vanish under a great cap of ice which would bury them out of sight. Nature, however, in the universal balance of compensation that attends all her actions, has provided for such a contingency and, by applying the law of gravitation, has caused overflows of ice at the lowest parts of the basins. These overflows are practically rivers of ice, covered by snow until at lower levels a warm temperature melts the snow and uncovers the ice beneath. They here come under the term "glacier," or more properly speaking, "dry glacier," although they are far from dry, for the melting ice rushes in streams down the

surface and fills the hollows. At night the running water freezes and when again subjected to the warmth of the sun, the ice, through expansion, splits in many directions.

The flow of an ice river down its bed is necessarily very slow—not more than a few inches a day, depending upon the steepness of the grade. Where the bed is uneven and the flow is over ledges or precipices of rock, the ice splits in great tranverse cracks called crevasses, presenting a much broken surface, corresponding to rapids in an ordinary river. These are known as icefalls. Sometimes the cracks cross each other in opposite directions and the result is a series of pillars of fantastic shape named "*Séracs.*"

The Canadian Rockies are remarkable for the number and purity of their glaciers. Although there are none of great length, as seen in the Himalaya and other mountain ranges of the world, their wildly broken icefalls and the low altitude at which they are found—frequently below timber line—lend a picturesque charm to the scenery that is one of its most striking features. The great peaks, lined by cliff glaciers, the hanging glaciers that tumble down their sides in broken ice cascades and the far-reaching fields of snow filling the hollows are a joy to the traveller, and delight the eye in contrast with the grey limestone peaks and the hazy blue valleys of primeval forest.

Clouds

In early summer and late fall the cloud effects are magnificent. Great billows of white cumulus cloud hang over the peaks and collect along the crests of the ridges. Seen from the prairies the higher peaks of the eastern escarpment of the range are hidden in a dense bank of these white clouds. It is usually a sign of the Chinook wind and, at the break of winter, is looked for as a harbinger of spring. Prairie dwellers think of fierce winds and snow storms raging beyond this aerial barrier,

and bless their stars they are not there. Such, however, is not the case: piercing the barrier, a bright sun is found shining in the valleys, the silver streams are turning brown with rock silt and the pines are showing bright emerald green in their new spring attire, and are aromatic with the throb of life.

The study of clouds is one of deep and varied interest. You will see them suddenly appear along the face of a mountain, forming anywhere, as the warm air crosses a belt of cold shadow, the mouth of a gully or a body of ice, and as suddenly and mysteriously vanishing in the bright sunshine. Streamers of cloud will drape the summit of a high peak all day long, giving it the appearance of an active volcano. This effect is often seen on Mt. Sir Donald near Glacier House, and then the Swiss guides say: "Ha! Ole Sir Donell, he smoke him pipe."

Although these clouds look so beautiful and so inviting, travelling in them is not a pleasant process, and has the feeling of a wet blanket, sending chills creeping down one's marrow-bones. It is an eerie sensation and magnifies the close surroundings to altogether undue proportions, so that a pinnacle looks like a peak and a short drop like a bottomless precipice. On wide snowfields the cloud blanket is very embarrassing for keeping direction and it is often necessary to shout and use the return echo to guess where you are.

Storm clouds on the other hand are very objectionable. Sometimes they are highly charged with electricity. Then the nearby rocks begin to hum, ice-axes to buzz, and, if you remove your hat, your hair will stand straight up on end. When surveying, I have several times received a severe shock through touching the screw of a mountain transit-theodolite while it was buzzing. There is no real danger in this sort of cloud, but thunder clouds highly charged with electricity, which bursts forth in lightning flashes, are very dangerous and have been known to

cause a loss of life to mountain climbers. Think of a bad thunderstorm in your home locality, with the crashes directly overhead; now move up to the summit of a high peak, where the clouds that caused the storm are actually at your level. The result is that you are in the middle of it, and you can well imagine how terrific it must be. It is not an unusual occurrence, when at the summit of a peak to see a fierce thunderstorm in full display beneath you, while all around at your elevation the sky is clear and the sun shining brightly.

The writer and his survey party had a very uncomfortable experience of such a thunderstorm during the summer of 1915. We were at the summit of Goulds Dome in the High Rock Range, a sub-range of the eastern escarpment of the Rockies, south of the Canadian Pacific Railway's main line. Thunder clouds were seen approaching and the ominous crash and flashes of lightning came nearer and nearer. Quickly they were all around and a splitting crash overhead warned us off the crest of the mountain. I called my companions together and we descended about thirty feet. Hardly had we done so when a bolt of lightning struck the rocks within forty feet, sending a puff of rock dust into the air. Another was seen to strike far below, accompanied by a puff of smoke like a bursting shell. A few minutes after, Gordon, who was sitting close to me, leaped up and clapped his hands behind him, exclaiming: "Oh, Lord!" I well knew what had happened him, for I, too, had felt the shock. A bolt had struck the top of the peak close by and electrified the whole of it. It was instantly followed by an ear-splitting crash, far more awful but less deadly than the lightning. We had scarcely realized that no damage was done, when with a wicked sizzle a flash of lightning appeared to fork completely around us and I felt a severe electric shock all over. The storm seemed to hang around the peak for an infinity of time as we sat with our coats over our heads,

for it was pelting hail, and waited for what might happen. Presently it passed and the sun shone clear and bright, but I am free to confess that I momentarily expected that one or all of us would be killed by the lightning. The peak, 10,169 feet in altitude, is the highest of the range and is undoubtedly a storm centre, for day after day, about the same time thunder clouds were seen to gather about its crest and the lightning encircle it.

Only two days before we had made an ascent of the peak from the opposite side. It was a bright sunny morning when we started and we did not take coats. Having reached the required spot (not the summit) and done our work, we started to descend. We noticed that it had become very dark but, busy with the difficulties of the descent, had paid little attention to it. Suddenly a roar, like that of a giant waterfall, far below drew our attention and we saw that the entire lower part of the mountain was hidden by a dense white cloud, from the centre of which the roar emanated. It proved to be a cloud burst and sheets of hail were falling. Gradually it worked upward and we were enveloped in it. We had reached a little depression between a precipitous wall of thirty or forty feet and a long snowslope by which we had ascended. The hailstones were as big as small marbles and struck our almost bare backs with stinging force. Here we crouched at the base of the rock and awaited events. Soon things began to move; single stones came leaping from above and, missing us by inches, shot down the snow-slope at vicious speed. The single stones became fusilades; rock falls crashed all around; what had been trickling streams when we ascended were now roaring torrents and we realized that the mountain had run wild. It was freezing cold and, as our chances were none too good where we were, we decided to take them on the snow-slope and get to a place of safety. So we descended as rapidly as possible and by the time the bottom of the slope was reached the storm

was over and the sun shining. But what a sight! The mountain was a great white mass; piles of hailstones lay everywhere; sheets of water were coming down the slopes and pouring over the ledges; torrents were raging down the gullies and loosened masses of rock were still falling. I had never seen a mountain run wild before and the sight was one I shall never forget.

Spectre of the Brocken

This phenomenon is supposed to belong exclusively to the Harz Mountains of Germany. Notwithstanding, I have seen it several times in the Canadian Rockies and have heard of it being seen several times more.

The conditions upon which it is dependent are a nearby bank of cloud and the sun behind the observer in nearly the same plane. Thus, the shadow of the spectator is thrown on the cloud. If close, it is a small, black, sharp-cut representation; if distant, it is huge and not sharply defined, giving the impression of a mysterious giant form. It is surrounded by a circular disc, composed of the prismatic colours in regular order, vivid if the shadow is close and faintly defined if distant. My first experience was on Sentinel Mt., a peak of the Highwood Range, overlooking the prairies of Alberta. I had been working there with an assistant, an Irishman from Cork. A dense bank of cloud had formed from nowhere in particular and had settled along the edge of a precipice above which we were standing. You could put out your hand and touch it. Suddenly, as the sun in the west dropped to our level, each saw his own shadow, like a sharply defined mannikin, in the middle of a circle of rainbow colours about a yard in diameter. It was very funny, every movement was accurately portrayed by our double on the cloud bank. The Irishman was astounded and proceeded to execute a jig for the pleasure of seeing how his double did it. He took off his hat to the shadow, who returned the compliment, and made a number of con-

temptuous gestures which were instantly repeated. At last he exclaimed: "Begorra that's foine! I wonder would it go away if ye threw a sthone at it." The conditions creating this form are probably rare and the more frequent exhibit is in the shape of an immense shadow on a more distant cloud, giving the impression of something weird, mysterious and spectral. Each person can only see his own shadow, so that descriptions of the spectre are liable to vary when seen by more than one person at the same time, thus adding to the mystery. The prismatic circle is called the "Brocken Bow."

Rainbows

By no means least interesting are the rainbows, which are seen in every grade of intensity and in every conceivable position: great coloured arches in the sky, bridging wide valleys, spanning narrow gorges, above, below, almost at hand, where the traditional pot of gold seems within reach.

Again referring to the summer of 1915. While on a peak across the valley of Dome Pass, exactly opposite Goulds Dome, we were favored with the most perfect exhibition I have ever seen. The customary afternoon thunderstorm had centered around the Dome and was passing to the northward, leaving the valley between filled with black gloom. A break in the clouds and the sun shone out, and then, on the opposite side of the valley, appeared a giant double circle of intensely vivid prismatic colours—the rainbow and its reflection, the reflection being very nearly as brilliant as the original bow. In this case it was a complete circle except for a small portion at the bottom of the valley where the crest we were on cut off the sun. Directly in the centre of the double arch, as in a frame of many colours, the black silhouette of Goulds Dome stood alone. It was a wonderful and unique spectacle, weirdly intensified by the black gloom of the passing storm.

In the Gordon Canyon, above Bow Lake, is the very narrow and deep rock canyon. The walls are so close that a single boulder fallen from above has furnished a natural bridge. A glacial torrent flows through this crack in the rock and, at a certain place, there is a perpendicular fall over a ledge. Below the fall is a pothole, formed by the swirl of the water, and the tiny chamber is filled with mist. It is possible here to climb down to a ledge below the fall and when standing on it the walls approach closely and overhang, so as to shut out the daylight except from a single small opening in the rock. I happened to stand on this ledge just as the sun came opposite the opening, and immediately a tiny rainbow formed across the pothole chamber and rested one end of its arch upon my feet. One of my childhood's beliefs had been, that if you could reach the end of a rainbow you would find a pot of gold. It was rudely dispelled. The end of the bow rested on my feet, but alas! there was no pot of gold.

In the canyon of Moose River, not far from where it opens to the Grand Trunk Pacific continental railway line, a few miles west of Yellowhead Pass, is a place where you are between two falls. The upper one drops fifty feet, the lower twenty feet. Here the awe and grandeur of the canyon culminate, the rock walls descend sheer, mist and spray fill the gorge and eddy between the walls continuously. While I was there, it was a bright sunny day and I counted six baby rainbows playing hide and seek in the swirl of vapour.

Any number of examples might be quoted, but the above will suffice to illustrate a phenomenon that, while seen everywhere, is of special variety and interest in the mountains.

Those of our members who read this will, no doubt, call to mind many other meteorological phenomena that have come to their notice, or other phases of those that

have been touched upon, and the photographers among them will have many wonderful examples of cloud forms. In these outlying wilds of Nature only extremes are met with: it is either too hot or too cold, too wet or too dry, the creations are very beautiful or grotesquely ugly. It is probably for such reason that we find them so attractive and turn to them again and again as a relief from the prosaic routine of everyday existence.

MISCELLANEOUS SECTION

MT. ALEXANDER MACKENZIE

By Mary L. Jobe

Mt. Alexander Mackenzie is the name recently given by the Geographic Board of Canada to the magnificent, newly explored peak at the headwaters of the Fraser River in the northernmost Canadian Rockies. It is approximately 120° 10′ W. Longitude and 54° N. Latitude, and has been heretofore variously denominated the "Big Mountain," "Mt. Kitchi."

My 1914 expedition, described in the 1914-1915 Canadian Alpine Journal, Vol. VI., pp. 188 to 200, under the title "The Expedition to Mt. Kitchi: A New Peak in the Canadian Rockies," had created an intense desire to explore this great glaciated peak again. Accordingly during the late winter and early spring of 1915, I planned my second expedition to this mountain, again arranging for the guidance and outfit of Mr. Donald Phillips, of Jasper, Alberta. My companions were Miss Caroline B. Hinman, of Summit, New Jersey, and Messrs. John Arnold and David Tyler, of Brooklyn, N.Y., all with considerable mountaineering experience. Frank Doucette, a second guide from Jasper, and a cook, Joe Soper accompanied the expedition. The 1st of July, the outfit of twenty-three horses met us at Robson Station, and from there we started on our old trail into the North Country.

Our general line of travel may be described as follows Starting at Robson Pass, the route lay north down the

valley of the Big Smoky, beyond the mouth of Wolverene Creek, to the mouth of Glacier Creek ("Bess Creek," Collie and Mumm); thence up this Creek, across Bess Pass, Bess Shoulder and Jack Pine Pass; from the valley of the main Jack Pine to the Middle Jack Pine, and thence directly to the West Jack Pine. From this river we again travelled to the Fraser Smoky and thence to Crescent Lake Pass, as in 1914. Beyond this point, we changed our course, crossing the head of Forget-me-not Creek, travelling north to the well-known Indian trails on Sheep-Creek Pass and the Porcupine. Skirting the head-waters of Providence Creek, we travelled generally near the Divide and finally approached the Big Mountain from the northeast, where we camped on the flats below the moraine of one of its big glaciers. From Mt. Alexander Mackenzie, we travelled north to Jarvis Pass, and crossed the pass to the Wapiti. This was our "farthest north." Returning via Jarvis Pass, the Porcupine, Providence Valley and Sheep-Creek, we crossed to the Muddy, which we followed to its mouth, rafted the Big Smoky below the mouth of the Sulphur and followed the old Indian trail to Grand Cache. From this point we travelled up the Sulphur, crossed Hardscrabble Pass to Rockslide Creek, and again struck the Big Smoky near the mouth of Short River ("Glacier Creek," Collie and Mumm), and thence returned to Robson Station the 1st of September.

From the time we left Robson Pass until we crossed the West Jack Pine, we had unsettled weather. Beyond the west branch we made an attempt to skirt the head-waters of the east branch of the Fraser Smoky, and thus avoid the difficult travel through the dense British Columbia forests, which had given us so much difficulty in 1914. To this end we left Avalanche Pass and our 1914 route far to the westward, and crossed a high ridge to the north. Here we saw many kinds of small animal life: blue grouse, in the small balsams at tree line; ptarmigan, in the higher heather slopes; gophers,

whistlers and conies among the rocks; from a meadow in the burnt timber a white-crested sparrow sang his plaintive song as he flitted to and fro among erigerons and painted cups; high up on a snowfield juncos flew about excitedly at our approach; while, rarest of all sights in this north country, two robins hopped about on a green grassy slope. One flew to a little scrub balsam and there sang his spring love song as if he were the first robin of spring, poising on the topmost branch of the tall maple in the pasture. These were the only robins we saw on the trip; but at almost every one of our camps the little white-crested sparrow greeted us with his minor strain: "Come see me," he sang invitingly.

Just as we reached the crest of the ridge a storm of rain and hail broke over us, and, as we began our descent on the other side, a dense cloud enveloped us. It was impossible to see more than ten feet ahead as we made our downward progress over 1,000 feet of shale and alpland. After making camp, the rain soon turned to snow. From July 9th until July 14th, we were "snowed-in" in Stormy Valley. As the snow lay three or four feet deep we were unable to move our outfit, or even to travel on foot any distance from camp.

From the little scouting ahead we had been able to do, it was obvious that this new route would not offer any advantage over our 1914 route. Dense woods filled the high valleys ahead of us; travel along tree line was impossible, because it was both circuitous and difficult. On July 13th, Phillips started out alone on a two days' reconnaissance, and on the 14th the remainder of the party made the ascent of Lone Mountain, a high rocky peak we had located in 1914. It is remarkable because it is quite isolated and rises suddenly to an elevation of about 9,000 feet from densely forested low mountains which encircle it. The peak itself is a mass of grayish greenish-black rocks, all moss-grown and beautiful in color. From the top we could see the Big Mountain

quite plainly through the glasses, although it was cloud-aung. Mount Ida, too, was clearly visible, with a great stretch of ice and snow extending between it and its giant neighbor. The same bands of rock strata, alternating with bands of ice, were visible on both peaks even at this great distance. Near at hand the Black Twins and Crescent Lake stood out fine and clear. To the southeast, Jones Peak and Jack Pine Mt. were in plain sight, but there was no trace of Mt. Bess or "Mt. Chown." The view to the northeast was across miles and miles of forest—"a visioned valley, with a green stream streaking through it"—the main east branch of the Fraser Smoky, near its source. In one of the little side valleys, several miles away, a big open meadow appeared. Doucette's keen eye spied moose. "Where?" He told us: "Near a patch of snow." On looking through the glasses, the moose proved to be horses—seven of them—the patch of snow, a clean white tepee. "Probably Donald McDonald and his wife who are in from the Muddy on one of their hunting trips," said Doucette. Whoever they were, it was our only glimpse of other wayfarers on our entire trip. It seemed too bad to pass by without greeting them!

While still above tree line, on our descent, Doucette sighted caribou—the glasses showed nine—feeding in a brownish-green spot in an open meadow where the winter's snow had only just melted. We approached nearer and nearer to them, fearful each moment lest they get wind of us and run. However, we advanced within twenty-five yards, photographed them, and finally walked into the herd before they chose to move. Two of the men shouted loudly just to see them run. They did—in a moment they had vanished among the trees. On the other side of the meadow we met Phillips returning from his two-day trip to look out a route to Sheep-Creek Pass. He, too, had been watching the caribou for more than an

hour, and had been lying on the hill in the sunshine in plain sight of them.

Phillips found there was no better route out of the valley than our old route to Crescent Lake Pass. Accordingly, the next day, the snow having disappeared in one day of brilliant sunshine, we retraced our steps to the crest of the ridge. After travelling several miles to the end of this ridge we picked up our 1914 trail. In company with Miss Hinman, I had gone ahead of the outfit in order to get some compass bearings from a point above Avalanche Pass. To my surprise I found the 1914 hoof-prints of our horses still quite distinct in a clayey side hill, despite the fact that they had probably been under snow for at least nine months. Fifteen hundred feet below we forded the Fraser Smoky and again took our outfit up the twenty-four switch-backs on the opposite side of the valley to Crescent Lake Pass. The previous day Phillips had spent nearly ten hours cutting out these switch-backs. "If each year the trees fall in as great numbers as they have during this past year, soon no forest will be left standing," was his remark.

The descent from Crescent Lake Pass seemed steeper than ever, and our heavily packed horses took it on the run, while our old camp site in the valley below seemed even more beautiful than before. Here is a perfect gem of a mountain stream! Crystal-clear, cold water runs laughing and gurgling over mossy brown-green rocks, and falls into deep, dark pools. Heathery slopes, starred with anemones, lead up into a dim, dark forest. The witches are in this little stream—sprites of gladness and joy! They call to you, and laugh at you, and make you love this spot as you have loved no other. They tug at your heartstrings as you go. You have left a friend behind!

From this point to Alexander Mackenzie, we did not again strike our old trail. We crossed two ridges to the

headwaters of Forget-me-not Creek. Beyond the second ridge we came to a chain of lovely clear lakes, far above tree line, and each one fringed with forget-me-nots of a most brilliant hue. From the headwaters of the north fork of Forget-me-not Creek we crossed the Divide to the south fork of Sheep Creek, where we came upon an old Indian camp ground with three large drying racks, indications that a big kill had been made there in the days when the Indians ruthlessly slaughtered and consequently exterminated much of the big game. We picked up their old trail on the Divide and followed it until it became buried under the debris of burnt timber. The Indians had not been in since the forest burned—the fire having been caused, doubtless, by their own carelessness in leaving their camp fires smouldering. How little the Indian knows of conservation! And how little of the fundamentals of self-preservation! To burn out the forest as he does means the extermination of game, and oftentimes the destruction of his own livelihood.

We soon got above the burnt timber. Travelling above tree line is always satisfactory. From our high elevation, we could plainly see the main valley of Sheep Creek, and below us a well-defined trail. This we picked up and followed down over bench-land and through broad, dry meadows to an old Indian camp ground near Sheep-Creek Pass, where the main trail from the east joins the south trail. Doubtless the Indians had camped here for generations; drying racks in various stages of decay were on all sides; any trees had been cut for firewood. It is a beautiful camp site. Miles and miles of broad meadows stretch from east to west, while a camp could be pitched in any one of a dozen different places and each with fine prospect of mountain, stream and valley, and with horsefeed enough to keep horses in condition indefinitely. This same camp ground had been used by Mr. S. P. Fay in 1912 and by Mr. Fay and Mr.

C. R. Cross in 1914 on two expeditions described by Mr. Fay in the 1914-1915 Canadian Alpine Journal.

From this point we found easy going to the Porcupine, past "Surprise Lake" and on to the headwaters of Providence Creek. From the camp we climbed a low peak to the north which gave a fine view of a wide expanse of country. Beautiful lakes were here on all sides, some were large and filled the valleys; others were only tiny tarns in the hollows of the hills—but each mirrored some rocky pinnacle, or glacier-hung peak. The Big Mountain dominated everything, Mt. Ida and the two glacier-clad peaks between looming up high and clear; the whole western landscape afforded a wonderful array of glaciers, snowfields and towering peaks.

After crossing the Divide west of the headwaters of Providence Creek we left the trail followed by Mr. Fay, and travelled almost due west, camping about five or six miles distant on the shores of one of the lovely lakes we had seen from a shoulder of the Big Mountain in 1914. They had been named Margaret and Mariel by Phillips, who, because they seemed such tiny things at that distance, had ventured to suggest personal names. "Mariel," as the northernmost one was designated, is north of the Divide, and drains into the Porcupine. We found it a fine expanse of water. From its western shore, there is a fine vista of mountains, and the reflections in the evening light are not easily forgotten. Extending westerly and southerly from this lake, are broad open meadows, almost as flat as a table and dotted everywhere with balsam trees whose branches grow so close to the ground it is almost impossible to creep under them. All the banks of the lake are gently sloping and there is a clean gravelly bottom. "Lake Margaret" is south and west of the Divide. It has no pronounced southern outlet, but there is a spill-over, which drains into a Big Salmon tributary. It is almost the exact opposite in appearance and character of the other lake. Forests

grow on all sides to the water's edge. In fact, it is easy to approach within a few yards of the lake and not be aware of its existence. On one side a high mountain rises abruptly from the water. The shores are filled with huge boulders, and the bottom drops off abruptly in some places to great depth. So completely shut-in is the lake that we found it impossible to get a photograph of the entire sheet of water. From the broad meadows of the northernmost lake, we had a splendid view of the Big Mountain. It seems only a short distance away, but it is easily six or seven miles to its base. The old Indian trail continued from the shores of one lake to the woods skirting the other. Cuttings many years old were visible in many places. Here, too, we found a remnant of an old camp-fire made, perhaps, ten years ago. This valley was obviously the terminus of the old Cree trails, and had been used less frequently than the main thoroughfare from Sheep Creek to Jarvis Pass, due doubtless to the density of the forests on the British Columbia side.

Continuing through the woods, we crossed a very steep side-hill, and came out upon an alpine summit. Here we had a magnificent view of the northeast face of Mt. Alexander Mackenzie. The main peak shot up brilliantly into the sky, while below the great masses of glacier shone resplendently.

Beyond this summit we took our outfit down an abrupt descent of at least 1,000 feet over wind-falls and through rhododendrons and alders. The wooded hills seemed to come together in a deep gully. From above, it looked as if we would not get our horses down at all, or, once down, that we could not find a camp-site. The first belief proved incorrect, for we did reach the bottom of the valley, with no greater disaster than that of continually plunging knee-deep into mud; but, finding a camp-site was not so easily accomplished. Once out of the timber we came into a broad muskeg-meadow. This we followed for a distance of two miles into a narrow

rock-hung defile, at the head of which one of the branches of the Big Salmon is born. Glacier moraine and steep wooded slopes fill the upper valley. The river is of fair size. It branches and flows in various channels across the boulder-strewn willow flats. These boulders are all huge, newly-displaced rocks, swept down by recent, powerful snowslides.

After searching up and down the valley for a good camp-site and not finding one, we finally pitched our camp on the willow flats at the foot of the moraine. Here, on rough, stony ground, we made a permanent camp. All hands turned out to render comfortable a spot in which we anticipated spending several weeks. A bridge was constructed across the stream to the woods from which came our supply of fuel and a fine table of split logs with log seats was built.

As we had made camp in a violent thunderstorm—sleet and snow had raged about us for an hour—we named this valley "Thunder Valley," and the ridge separating us from the main peak of the Big Mountain, "Thunder Ridge." Our camp was at the northeastern base of the outlying ramparts of Mt. Alexander Mackenzie.

After making several reconnaissance climbs on nearby points, we made our first attempt to climb the Big Mountain on July 25th. The climbing party consisted of Phillips, Miss Hinman, John Tyler, Doucette and myself. We left camp at 4.30 and after travelling half a mile up the valley toward the southwest, climbed 600 feet up a snow couloir, above which we found excellent rock climbing. Leaving the rocks, we came out on a very steep, hard snow slope, in which Phillips had to cut steps. Above this we reached rocks, and then a big snowfield flanking the north side of what we last year called the "Menagerie Glacier." At the top of this first escarpment, we saw the great panorama of cloud-

hung peak and intervening icefields stretched out before us. We were viewing it from the northeast.

For about half a mile we travelled westward along a rock ridge to a snow col, separating the Menagerie Glacier from the big glacier which forms the main source of Thunder Creek. This second glacier, which we had barely caught a glimpse of in 1914, we named Castle Glacier, because the ice here assumes a peculiar castellated form, and a big rock mass which rises above the ice, likewise has the appearance of many strong castle towers. At the west end of the col we climbed over the cliffs to the left and came out on the glacier, well above the maze of crevasses we crossed in 1914. On either side it is flanked by hanging glaciers and by ice-falls. It was at this point we were compelled to turn back on our first attempt in 1914, on account of a heavy snowstorm. We next crossed a half mile of level glacier and snowfield and then climbed a steep snow-slope to bare ice, filled with crevasses for a short distance. Here, again, as on our second 1914 climb, we saw many little dead birds, and we also noticed on one of the snowfields tracks of a big grizzly.

Above the crevasses we had good going to the summit of the second escarpment and to the cairn built on our *second* attempt in 1914. From this point the big main glacier, which I have called Kitchi Glacier, slopes away for miles to the west and southwest. It receives the constantly avalanching snows from the north face of the peak, and from a very long ridge which extends for a considerable distance to the west of the main peak. The Kitchi Glacier forms one of the important sources of the south fork of the Big Salmon.

While eating our second breakfast at 9 o'clock near the cairn, the clouds which had enveloped the peak all morning lifted and revealed a huge ice mass, clear white against a bright blue sky—a great, overhanging, broken

cornice which forms the extreme summit of the main peak itself, girded on all sides by sheer ice cliffs, and here and there bands of perpendicular, black rock cliffs protruding from the green-white of the mighty mountain itself. The whole face of the mountain was streaked and torn by avalanches. Phillips, John Tyler and Doucette decided to investigate a route along the northwest arête.

I here quote from Phillips' diary:

"It was 9.45 and we were still nearly two miles from the northwest ridge which we decided to try to climb. The safest route seemed to be by way of the glaciers to the southwest, but as this would mean six or seven miles over snow and ice, we decided to go straight across the glacier and up a very steep snow-covered glacier, between two icefalls. We made good time to this point, but there found terribly steep snow-slopes into which we plunged above our knees. Great crevasses, some a hundred feet deep, and too wide to cross spread out before us. These we had to work around or cross on snow-bridges, walking on hands and feet to distribute our weight evenly. After about two and a half hours we reached the foot of the steep snow-slope below the main ridge. Here we chose for our ascent a space a hundred feet wide, which was safe from slow-slides. Reaching the first rock cliffs, our really dangerous climbing began. The spaces between the cliffs were filled with snow, which at that time of day was wet and ready to slide at a single touch. It had to be scraped away down to the rocks. These, unfortunately, were poor footing as they all sloped the wrong way at an angle of about fifteen degrees. The danger of snow-slides became so great at an altitude of 9,000 feet that I decided to turn back. We still had several hours of climbing to reach the summit and all our steps below I knew would be covered, for we had kept a steady avalanche of snow and rocks going down as we climbed. At 4 p.m. we reached the last cliffs, and knowing it inadvisable to go again between the

ice falls, we returned by the glacier and snow-fields, which required about three and one-half hours. We found the remainder of the party anxiously awaiting our arrival, as they had seen us come down from the ridge to the snowfields, turn to the southwest, and there had lost sight of us for three hours."

For Miss Hinman and myself, who had decided not to attempt the final climb—so long and dangerous had the ascent seemed—the day passed as if we were watching a drama on a vast stage, with actors in as thrilling a part as was ever played. So intense was our interest, that the time for us passed quickly. Just *nine hours* after they left us, they appeared on the glacier within call. It was sunset. Great black clouds rolled up in the northeast. It suddenly grew black and overcast, a biting sleet fell and a high wind screamed about us. "We must hurry down over the glacier before the storm reaches us," Phillips had said. As we travelled quickly down over Menagerie Glacier, a wonderful rainbow showed against the purple-black clouds ahead of us. The smouldering fire of the dying sun flamed up for a moment and gilded and reddened the peaks off to the northeast. The glaciers and snow-fields caught and for an instant reflected the afterglow.

We descended to the snow col, skirted Castle Glacier and traversed the big rock-fall beyond, and shortly after dark again reached our camp in Thunder Valley. It was July 25th, just eleven months to the day since Phillips and I had tried the mountain alone.

The next few days we spent in an exploration of the lower valley and in determining the course of three branches of the south fork of the Big Salmon. A second attempt on the Big Mountain was now being eagerly discussed. As it had required eighteen hours of exhausting effort to make the partial ascent of July 25th, Miss Hinman and I decided not to attempt the ascent a

second time. Obviously greater endurance and strength than we possessed were requisites for such a climb. "It's a man's size mountain," Phillips had declared, and we were not disposed to contradict him.

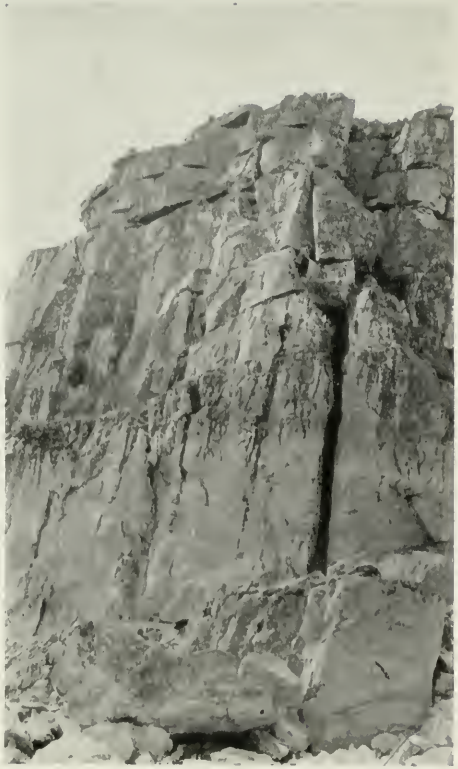
Accordingly, on August 1st, Phillips, J. Tyler and Doucette again started for the peak, this time choosing as a route the only part of the mountain not swept by avalanches, the northeast, "knife-edge" arête, which had appeared so forbidding to us last year. The climbers were off at 4 a.m. following our route of July 25th to the head of Menagerie Glacier. Miss Hinman, Arnold and David Tyler and I climbed Thunder Ridge — the ridge directly opposite camp—from which we commanded a fine view of the peak. As we were gazing at the mountain in the hope of catching a glimpse of the climbers, I remarked that there was one place on the northeast arête which looked like a great rope stretched across a snow-couloir, while a big black rock at one side looked like a black giant holding the rope. David Tyler who then had the glasses spied the climbers going up a steep snow-cornice to the main arête. On closer examination we could trace their route, back to the "giant's rope," which proved to be steps—forty of them, we learned later—cut in an almost perpendicular icewall. For three hours we watched them, fighting for every step up that terrific slope. In the middle of the afternoon big thunder clouds rolled up from Providence Pass. They soon enveloped the Two Towers, and although the worst of the storm was spent the clouds eventually drifted across the mountain top.

For the real story of the climb I again quote Phillips' diary:

"This time, we decided to try the northeast arête as it seemed less difficult and the highest part of the ridge of the peak is at that end. There was at least a possibility that we might be able to get over the three cornices to the highest point. At 8 a.m. we reached the foot of

Photo, Donald Phillips

THE MAIN PEAK
Line of Ascent by Northeast Arête
x, Highest Point reached, Aug. 1st



Photo, Donald Phillips

THE CHIMNEY

the arête and started up the bare rocks. At a distance these rocks looked solid but they are really very much broken and need only a touch to topple them over, and send them crashing to the glacier below. Our progress was necessarily very slow, as we had to keep close together to avoid falling rocks. Much of the broken rock had to be removed from the ledges. One chimney in particular all of us had to go up close together and get our heads above the top, before any one could get out, because the edge was covered with loose rock ready to slide down in an avalanche. After climbing up seven or eight hundred feet of this rock we reached the first snow and ice.

"We had expected to go to the right over a very steep snow and ice ridge where cutting several hundred steps would have been necessary, but we soon found that we could keep to the left on the rocks at the edge of the cornice, and would have fewer steps to cut. Forty steps we cut across a very steep ice-couloir, and then climbed up a steep snow-ridge to the top of the cornice coming out above the steepest part of the main snow-ridge. Even here the slope was appalling in its steepness, going out of sight a few feet below our line of travel. The snow was deep enough for good footing and we soon got up to where it was not so steep. Here, however, the snow was shallow on the ice. A thunderstorm was raging in the valley to the southeast, and we expected every moment to be shut in by the clouds. The storm gradually drew away to the eastward and the sun came out again.

"At the upper part of the snow, we struck some bad snow and ice between small, outcropping cliffs, but finally got out on the rocks of the ridge once more. Here the rocks were much better climbing and of a different formation, not being so broken as they were below. We now made good time, striking only small patches of snow and ice until we came in sight of the peak—a great ice-cornice hanging over the north side of it and the upper

part curving in a great hook over to the southeast. Apparently there was no way of getting to the top without great risk but we determined to get as close as possible at any rate. We kept on going until only two cornices separated us from the highest point—a distance of about 100 feet above us. At this moment the clouds shut down, and a gale of wind struck us. We had to take shelter behind a snow-cornice where we crouched for half an hour hoping for a break in the clouds, so that I could at least take a photograph of that terrible, hooked cornice which formed the main peak such a short distance above us. The clouds did not lift and, half frozen, we started back down the mountain.

"Whether we could have gone any further—if the weather had been fair — or whether we could have climbed the last few feet of the hooked cornice is problematical. Almost straight walls of ice covered with rotten snow and ice form these cornices." (These are the big ice caves with depending icicles which I have described in previous articles.) "The snow on the peak is not hard enough to kick steps in. It has to be scraped away and steps cut in the ice.

"The mountain is not as high as many have estimated it to be. Some have even estimated it at 12,000 to 12,500 feet. In 1914 we estimated it at not over 11,000 feet. In our 1915 climb our aneroid read a little under 11,000 feet.

"Mt. Robson is higher and more spectacular, but I found nothing on it to equal the danger of the treacherous snows and rotten cornices of Mt. Alexander Mackenzie."

We were glad indeed to have a reunited party at our camp that night and to hear the story of their climb—a much more dramatic and humorous narrative than is recounted here, for such a story can be told only once, and that immediately after its enactment and by the participants themselves.

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MT. ALEXANDER MACKENZIE
Northeast Face

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In summary: Mt. Alexander Mackenzie is undoubtedly the culminating northernmost peak of the Canadian Rockies. Its snowline is very low. Its glaciers extend far below tree-line. The average elevation of the terminal glacial moraines is approximately 4,000 feet. The area of ice surrounding this peak is enormous. It is easily thirty-five square miles and contains the main sources of three large branches of the south fork of the Big Salmon. The lower towers and ridges of the mountain are all acutely pointed and consequently retain little snow. The snow on the mountain is in constant state of avalanche. I counted five big avalanches at one time, all in plain sight on the north face of the peak. At close range, these avalanches sound like heavy thunder; at long range like the roar of distant artillery.

Mt. Alexander Mackenzie is a magnificent peak. It gives the impression of a singular grandeur, largely because its formation is so diversified. The south face, the east face and the north face are all distinctive. Its numerous glaciers are varied in color, shape, character and extent. The rock strata of its outlying ramparts are beautifully colored. Its debouching rivers are mighty and numerous. It is a complex thing and might well be called the Mountain of a Thousand Wonders.

From our base in Thunder Valley we took the trail north to Jarvis Pass, where as early as 1875 E. W. Jarvis, in a long surveying expedition, in which he travelled from Ft. George to Lake St. Anne, found this pass between the Fraser and the Porcupine. He came up the Fraser in the dead of winter bringing with him eight men and six dog trains with provisions for two months. He had to send part of his men and dogs back to St. George. In the late winter many of his dogs died. He travelled over 900 miles on snow shoes. The last 300 miles he carried a pack, making never more than ten miles a day. His locating this pass was a splendid achievement.

Our well-conditioned cayuses, now well fed and well rested after their long stay in Thunder Valley, afforded us a speed of travel which practically doubled that attained by Jarvis and his dog-teams. From Jarvis Pass, we continued to Mt. Ida and the head of the Wapiti, climbing several minor peaks, one a most interesting peak which we named "The Chimney." In its lower abutments eight fine rock chimneys occur. It gave us a fine view into the Big Salmon Valley and into the Wapiti. The latter survey gave us the conviction that we did not want to go further. Across the watershed the mountains grow perceptibly lower and the country has a desolate appearance.

Retracing our steps to Jarvis Pass and the Porcupine, we dropped down into Providence Valley, where we camped for several days and explored the valley rather thoroughly, locating many fine waterfalls, lakes and an impressive canyon. Returning to Sheep Creek, we travelled eastward to the Muddy which we followed to its junction with the Big Smoky. A day's travel below the confluence of these rivers, we swam our horses and rafted our entire outfit across the Big Smoky, making the ferry of one-half mile in three and one-quarter minutes. From this point we followed the Indian, Evan Moberly's trail to Grand Cache, then travelled up the Sulphur across Hardscrabble Pass, beyond which we again reached the Big Smoky.

On our way out to Mt. Robson we climbed Mt. Bess, the first ascent of which had been made by Collie and Mumm in 1912, which, I have been informed, was along the western arête. Our ascent, the second, was up the south face, and therefore probably the first ascent by that route.

Collie and Mumm estimated the elevation at 11,300 feet, but our aneroid registered only 10,500 feet a little above their cairn. Mr. A. O. Wheeler computed the

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MT IDA
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MT. ALEXANDER MACKENZIE
Porcupine
Lake Margaret
Surprise Lake
South
Fork
Big
Salmon
SKETCH MAP
MT. ALEXANDER MACKENZIE
AND VICINITY
1914 route
1915 route
2 miles

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altitude of this mountain from trigonometric levels based on the levels of the Grand Trunk Pacific Railway. His results gave 10,468 feet. The ascent of the peak proved interesting and in only one place difficult—a fifty-foot cliff, not far from the summit, which extended for a considerable distance around the mountain.

On the 1st of September we again reached Robson Station. It was with much regret on the part of each member of our party that our two months' trip came to a close.

In conclusion: I wish to express a deep sense of personal gratitude to Miss Caroline Hinman, who proved a splendid companion and contributed constantly to the success and enjoyment of the expedition; to John, Arnold and David Tyler, keen for every new experience and resolute in their desire to make the best of every hard circumstance; to our cook, for the best trail food I have ever eaten; to Frank Doucette, our "whirlwind of a packer," a strong and careful climber, and a most genial spirit on the trail; last and by no means least to Donald Phillips, whose unerring judgment and fine mountaineering and trail ability led us to our goal, brought us out of all difficulties without mishap and, in fact, made possible our 1914 and 1915 expeditions to Mt. Alexander Mackenzie.

MEMOIR OF THE LATE HAROLD W. TOPHAM

By H. E. Forster

Mr. H. W. Topham, of the English Alpine Club, who died last year, may be considered the earliest mountaineering pioneer of the Selkirks. In March, 1888, he visited that district with his brother—Caleb and Joshua, spying out the promised land. It was in the summer of that year that our honorary member, Mr. W. S. Green, made his historic explorations recorded in his classic book, "Among the Selkirk Glaciers."

Mr. Topham received his mountain training in Switzerland under some of the best guides of his day. His climbs were numerous and many of them of the first rank. He was a good comrade and a good mountaineer.

I was exceedingly sorry to hear of his death as I had the pleasure of making my first visit to British Columbia in 1890 with him and spending many happy and strenuous days in his company exploring the Selkirk Mountains. As Mr. Wheeler has asked me to write a few lines in memory of my friend and companion of this interesting summer I will endeavor to give a brief outline of our expeditions together that year.

It is so long ago, however, that it is difficult to remember details and even the proper sequence of some of our explorations. We were both staying at St. Moritz in Switzerland the previous winter for the winter sports, and it was there that Mr. Topham proposed that I accompany him on a trip he was contemplating in the summer of 1890 to the Selkirk Range of British Columbia.

He had a year or two before been in this province and had made a short expedition to the mountains in the

interior of Vancouver Island, and I well remember his description of the difficulties of travelling through the thick underbrush and heavy timber of the Island.

His main expedition that year, however, had been to Mt. St. Elias in Alaska in company with two or three friends, where they succeeded in reaching an altitude of nearly 12,000 feet on this mountain. Unfortunately they had to turn back at this point, so he told me, owing to the fact that from where they were to the summit was a steep ice slope, to overcome which would have necessitated several days' step cutting and camping at night on the steep mountain side, which was more than they were prepared for. Since Topham's attempt I understand an easy route has been discovered to the top of Mt. St. Elias from the other side.

After making some preparations in London we crossed the Atlantic together in May to New York, where we separated, to meet again in June at the Glacier House.

Topham had arrived a few days earlier than I and had employed the time crossing the Asulkan Pass in company with two so-called guides, but who made no pretence of being mountaineers, and making first ascents of Mts. Donkin and Fox of the Dawson Range. It was from the latter mountain that he had looked down into a beautiful mountain valley surrounded except for one narrow outlet by glaciers and precipitous rock walls, which he called Glacier Circle. He decided this would be an excellent camping ground from which to explore the surrounding mountains. Accordingly, a few days later, with the two guides Sinclair and Eves, we crossed the Illecillewaet névé and descended into Glacier Circle.

From this camp we climbed Mt. Deville as it was then called, but which has been since renamed Mt. Selwyn, owing to a peak in the Main Range having already been named Deville. This I remember was a long climb, as we had to first find our way up the steep rock wall on the

west side of the Deville icefall and then ascend the mountain by the arête leading up from Deville névé and although we started at 5 a.m. it was 3 p.m. before we reached the summit. If it had not been so late in the afternoon we would have gone on to the summit of Mt. Dawson, apparently an easy walk over snow, but we remembered the rock wall we had to negotiate again on our way down and which we wished to be off before dark and this, coupled with the fact that a thunderstorm was coming up at the time, decided us to leave Mt. Dawson for another day if the opportunity arrived. We thereby narrowly missed making the first ascent of the highest mountain in this section of the Selkirks, as we never had another good chance of ascending Mt. Dawson. Possibly Topham's barometer had something to do with it as it registered about 1,000 feet too low and made the mountain we were on appear much lower than Mt. Sir Donald, whereas we were several hundred feet higher than it.

From our camp in Glacier Circle we made several other expeditions, including one across the Deville névé as far as Grand Glacier, and then retraced our steps across the Illecillewaet névé to Glacier House. Topham had planned an attempt to ascend Mt. Sir Donald, but from the summit of Mt. Deville (Mt. Selwyn) we saw what looked suspiciously like a cairn on the top of Sir Donald and, sure enough, on our return to Glacier House, we found that Messrs. Huber and Sulzer, two Swiss gentlemen who had arrived during our absence, had succeeded in making the first ascent.

They had been so much impressed on their climb with the beauties of the Selkirk Range and the opportunities for mountain climbing that they were anxious to do some further exploration and finally we all agreed to join forces and make an expedition to the mountains beyond the Deville névé. Therefore, as soon as we could make the necessary preparations, we started from Bear

Photo, A. O. Wheeler

THE DEVILLE ICEFALL AND NÉVÉ

Photo, A. O. Wheeler

MT. PURITY

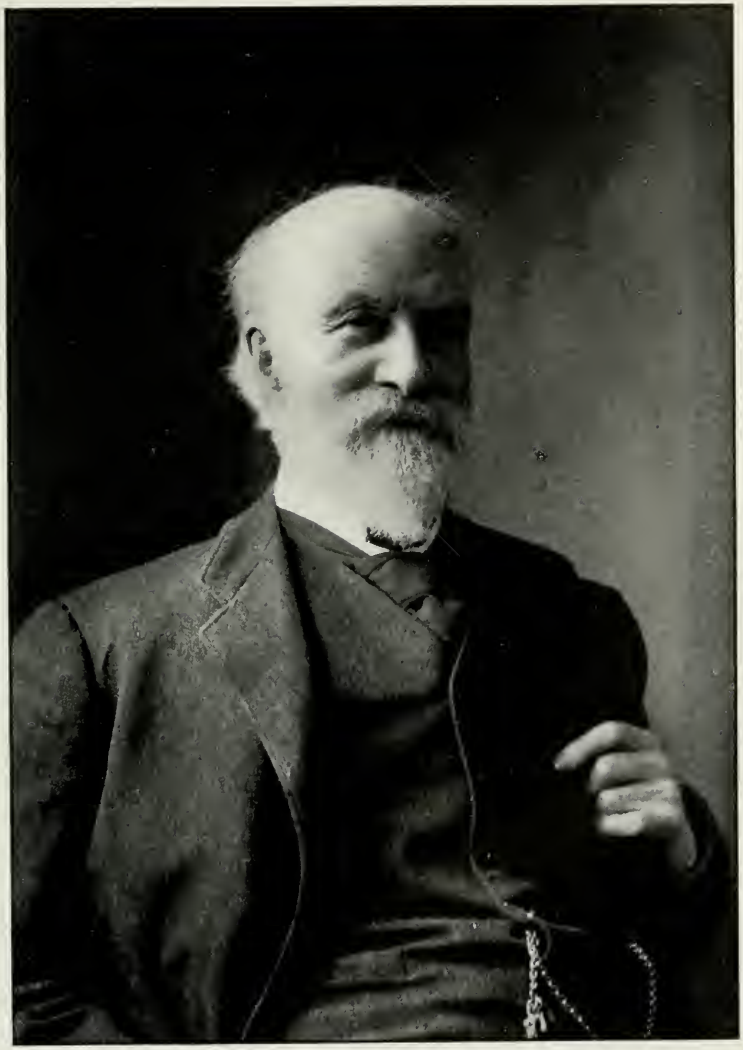
Creek station with our two guides and a pack horse, and reached a point on Prairie Mountain opposite Glacier Circle with the horse. From this point it was necessary to pack on our backs as it was impossible to take the horse down into the valley of Beaver Creek, through the thick brush and timber. We carried part of our outfit down to a camp on the banks of this creek and sent the guides back for the balance and while they were engaged in doing so Topham and Huber made a trip over the intervening rock ridge to Glacier House, returning a few days later via Glacier Circle to our camp. Sulzer unfortunately had been taken ill and had to return to Glacier House from this camp with the horse and one of our guides. The rest of us went on up the valley of Beaver Creek and made camp at the foot of Grand Glacier. From here we explored and mapped the mountains at the head of Beaver Creek and Duncan River and ascended Mt. Sugar Loaf. We then climbed up to the Deville névé, which we crossed and followed to its foot a branch glacier leading past Mt. Dawson to a point opposite the Donkin Pass. After some minor explorations from this camp we crossed the Donkin and Asulkan Passes to Glacier House again.

We found that Sulzer in the meantime was climbing the mountains above Rogers Pass, so Topham, Huber and myself made another trip over the Asulkan and Donkin Passes and proceeded to a beautiful snow-white peak which had attracted our attention on many occasions and which we had christened Mt. Purity. We climbed this peak without difficulty except for some tedious step cutting up a steep ice slope for the last 500 feet and which we found on our descent could have been avoided, and then retraced our steps to Glacier House for the last time.

It was now getting too late in the season and the weather uncertain and we reluctantly had to abandon any further expeditions.

I have often looked back to this pleasant summer spent in the wilds of the Selkirk Mountains with Mr. Topham, later with Mr. Huber as well. We had some hardships but none of them serious and Topham was an ideal companion to be with in such times, always ready to do his share and more than his share of any work, and overlook the shortcomings of a novice in the art of mountaineering like myself, and to give assistance over any serious obstacles that were beyond the ability of anyone less skillful than himself and he was besides always cheerful and good natured whatever happened.

As a mountaineer his record in the English Alpine Club will vouch for his skill and endurance. In fact if it had not been for his skill and perseverance, coupled with that of Mr. Huber, who was also a most energetic and skillful mountaineer and a good mate for Topham in every way, it would have been impossible to penetrate as far back into the Selkirk Mountains as we did at that time, when there were no trails to make the going easy and beyond a mile or two from the line of the Canadian Pacific Railway the mountains were unexplored.



SIR SANDFORD FLEMING K.C.M.G.

IN MEMORIAM

SIR SANDFORD FLEMING

Sir Sandford Fleming, Honorary President of the Alpine Club of Canada since its inception in 1906, died in Halifax on July 22nd, 1915, at the great age of eighty-eight. He had accomplished many great and important tasks in his long and honorable life and he was, as he once said, "grateful for his birth into this marvellous world and always anxious to justify it." He was born in Kirkcaldy, the "lang toon" in the Kingdom of Fife, descending from an old and worthy family of that ancient kingdom whose citizens "always hold their heads high." His maternal great-grandfather—a Cameron—fought at Culloden and was one of the loyal Highlanders who rowed Prince Charlie over to France; another of his forebears fought under Wolfe at Quebec, and a maternal uncle, his namesake, was a noted Sanskrit scholar in India.

Kirkcaldy is known to fame as the "lang toon" since "Rob Roy" when Andrew Fairservice declared "the sell o't is langer than ony toon in England." It was the birthplace of Adam Smith, the great political economist, and in its schools Carlyle and Edward Irving taught and cemented a noble friendship. It was there that young Fleming laid the foundation of his professional education, and there he received an excellent grounding in the humanities. For, it goes without saying that Kirkcaldy schools were of the best. Has it not been so throughout Scotland since John Knox? On his first visit to the land of his birth, Fleming went to see the aged Carlyle in London and was warmly received, the "weary Titan"

recalling Kirkcaldy days and Irving "the finest man he ever knew."

Fleming came to Canada in 1845 when he was eighteen years old, sailing with his elder brother David in one of the early Cunard steamers. The brothers stopped at Quebec, Montreal, Bytown (the site of Ottawa), Kingston (Queen's University then a "large, plain college"), and went on to Peterborough where they remained two months with an uncle, Dr. Hutcheson, who practised medicine there. David found employment in Toronto; Sandford began as a draughtsman in Peterborough, and in a year was surveying, making, lithographing and publishing a map of the town. Thenceforth his footing was sure. He made and published other surveys, obtained a commission as provincial land surveyor, also the Civil Engineer's certificate, and settled down to practise in Toronto.

It was now 1849 and he was twenty-two years old. In this year there began the long series of public services which ultimately made his career of such value to Canada and the Empire. On his eightieth birthday, Sir Sandford's grandchildren presented him with an illuminated address (reprinted in the first issue of this Journal), whose margin consisted of fifty-four dates or periods in his life, many of them marks of such service. Perhaps I cannot do better than take some of these outstanding dates.

In 1849 then, Sandford Fleming began to be a public man when he instigated and succeeded in getting founded the Canadian Institute which, ere he died, was authorized by King George to use the prefix Royal. In 1851 his plan of Toronto was published; in 1855 he was Chief Engineer of the Northern Railway, which eventually was absorbed by the Grand Trunk Company; in 1863, he was appointed by the Red River Settlers a commissioner to present their transportation needs to both the Canadian and Imperial Governments; the

same year he received from the Canadas, the Maritime Provinces, and the Imperial Government, a triple commission to make surveys for the Intercolonial Railway and later, was appointed its Engineer-in-Chief; from 1871 to 1880 he was Engineer-in-Chief of the Canadian Pacific Railway, during the last five years of that period being chief engineer also of the Newfoundland Railway; in 1872 he conducted an expedition across the Canadian Mountains north via the Yellowhead Pass and the Thompson River; in 1883 he made an expedition across the Rockies south to explore the proposed railway route through the Selkirks; from 1876 to 1888 he wrought with pen and tongue for Standard Time-Reckoning, which was adopted in America in 1883; from 1878 until it was laid, he was active in the promotion of the Pacific cable, making at his own expense a journey to Australia in its interests; from 1880 until the end he was Chancellor of Queen's University; in 1881 he was a delegate to the International Congress at Venice. Then, there was the "All Red Line" and "The Imperial Intelligence Service." There were other services also, but those mentioned show how close and steady a toiler was this man. In such enterprises as that of the Standard Time movement and the Pacific Cable, much opposition had to be overcome, whether of apathy or of open and secret activities; indeed, this great engineer knew well, none better, that a man wins out in great endeavours, through many obstacles. In the biography by Mr. Laurence Burpee, we get an insight into the processes by which so much was achieved in his life.

Honours came to him as the years went by, among them the LL.D. St. Andrew's University, the freedom of his native town, the C.M.G. and the K.C.M.G., the Honorary Presidency of the Alpine Club of Canada. Probably no man in Canada would have suited this honorary office of the Alpine Club so well; certainly none would have been better pleased to hold it. Sir

Sandford loved the mountains and knew the real value of mountaineering as a sport. He only regretted, as he once wrote me, that he was too old to climb them. The two expeditions mentioned are recorded in two books which members of the Alpine Club might count themselves happy to own: the journey across the Rockies north in "From Ocean to Ocean" by the late Principal Grant, and that across the Rockies and Selkirks south in "From Old to New Westminster" by Sir Sandford himself. Both are fascinating narratives of mountain adventure and will never lose their interest and historic value.

Dr. Grant accompanied Mr. Fleming on both expeditions though the second one was much less imposing. In "From Old to New Westminster" there is a description of a charming episode on Rogers Pass, an episode recalled in the article, "Memoirs of the Mountains" which Sir Sandford contributed to the first issue of this Journal. Waiting on the summit of the pass while the weary, hungry horses fed on its rich pastures, every man of his company felt the impression of the place. Many members of the Alpine Club know how impressive are the views you get from that lovely meadow, lift your eyes in what direction you may. The mountains round about inspired and challenged them, and it was proposed to organize a Canadian Alpine Club on the spot, so to preserve a memorial of their visit. Says Sir Sandford: "The writer as a grandfather is appointed interim president, Dr. Grant, secretary, and my son, S. Hall Fleming, treasurer. A meeting was held and we turn to one of the springs rippling down to the Illecillewaet and drink success to the organization. Unanimously we carry resolutions of acknowledgment to Major Rogers, discoverer of the pass and to his nephew for assisting him." And the happy party proposed as the Club's first mountaineering venture, the conquest of Mt. Sir Donald, then named Syndicate Peak. Major Rogers, who met them on the pass, declared it as

the height of his ambition to erect the Union Jack on its summit, the day when the first train passed through the Selkirk Range. Two years later, Sir Sandford was on that first transcontinental train and the American major, so keen about the Union Jack, was waiting at Craigellachie, seventy-five miles west, where he was to hold the ends of the ties linking the railway east and west while Lord Strathcona (then Sir Donald Smith) drove the last spike in the Canadian Pacific Railway. Standing next to Sir Donald while he performed the ceremony were Sir Sandford and Sir William Van Horne. The spike driven home, for a few moments the spell of silence was upon the throng gathered there in the mountains, and then "the pent up feelings found vent in a spontaneous cheer the echoes of which will long be remembered in association with Craigellachie." So wrote Sir Sandford, and I am very sure that the two eminent Scotsmen recalled the war cry of the Clan Grant to which the older man belonged—"Stand fast, Craig-ellachie!"

Sir Sandford's last public work was in connection with the Memorial Tower in Halifax, erected to commemorate the 150th anniversary of Colonial self-government. He gave to the City the beautiful site at the Northwest Arm on which the tower was built and a large tract of land adjoining for a park. Here had been for many years his beautiful country place named "the Dingle." For the most part his closing years were quietly spent at Winterholme, his Ottawa residence. Never idle, he retained to the last all his keen interest in the larger movements of life, and to the end he remained a forward-looking man. The very clasp of his hand did one good. His life is an example and an inspiration to our Canadian youth. I cannot help quoting his own words, which are taken from his biography:

"I have always felt that the humblest among us has it in his power to do something for his country by doing his duty, and that there is no better inheritance to leave

his children than the knowledge that he has done so to the utmost of his ability. It has been my good fortune to have had my lot cast in this goodly land, and to have been associated with its educational and material prosperity. . . . . I am profoundly thankful for length of days, for active, happy years, for friendships formed and especially for the memory of those dear souls who have enriched my own life while they remained on this side."

And this good man, being dead, yet speaketh.

ELIZABETH PARKER.

MAJOR STANLEY L. JONES, P.P.C.L.I.

War takes its toll of the bravest and best. Among our members few were so well known as Major Stanley L. Jones. We had elected him President of the Club for the ensuing term, the highest honour we could bestow; and now he has gone from us, gone from us giving in generous fashion as was his wont, the best he had to give—his life—for freedom and for the Empire of which he was such a devoted son.

He was born at Wolfville, N.S., in 1878 and was educated at Acadia University. He taught school for a time in Manitoba, but was always a soldier at heart, and at the outbreak of the Boer war went to South Africa with the Nova Scotia company in the first contingent. He fought at Paardeburg and was in the squad to which Cronje surrendered. When peace reigned again he returned to Calgary where he studied law and later formed a partnership with W. F. W. Lent, the firm soon becoming well known in the legal world of the West. Some years ago he was made K.C. His investments were successful, his home happy and all seemed of fair promise.

He was a keen traveller, he had seen much of Europe, as well as of the North American continent, and wandered widely through the Balkan states during the former war.

His love of mountaineering was deep. As soon as the

LATE MAJOR STANLEY L. JONES, P.P.C.L.I.

Alpine Club of Canada was formed he joined, becoming an active member at its first camp at Summit Lake in 1906, and ever preserved his enthusiasm for the work it was doing for Canada. He was never too busy to give his advice when needed. To his generous gift the Club is indebted for the fine dining room at the Banff Club House which he admired so much.

Immediately the great war was declared, he telegraphed to Ottawa offering his services and was given a commission in the famous Princess Patricia regiment. He was soon promoted Captain and died a Major. Shortly after arriving at the front he was wounded in the hand. Recovering, he returned and was after some time wounded by shrapnel in the foot. Again he returned to the front and was wounded on June 2nd by an aerial torpedo and taken prisoner. The Germans gave him every possible attention, but he died in hospital and was buried in the convent garden at Moorslede, near Ghent, with military honours. The Belgian soil should rest lightly on him.

He was much interested in politics, and while at the front was asked to permit his name to be submitted as a candidate for parliamentary honours. He absolutely refused, realising as all the first contingent have done, and as those at home are at last beginning to realise, that the war, the fight for the right, is the only thing that matters. All else is triviality.

A gallant soldier, he died as he lived, a gentleman. There is no higher praise.

His wife, herself a soldier's daughter, has been serving through the war with the French Red Cross, and for her valued services has been granted the rank of Lieutenant. To her the Club extends its sympathy in fullest measure.

S. H. Mitchell.

J. J. ROBINSON, D.D.

Every member of the Alpine Club of Canada who knew him or knew about him will realize how great a

loss has befallen us in the death of the Very Rev. Dean Robinson, Warden of St. John's College, who passed away on the morning of June 14th, at St. John's, Winnipeg. Though not holding the office of Dean since he left Belfast for Canada in 1911, he was called "the Dean" both in the Club and throughout the Western country. Therefore in this little memorial sketch I shall use the more familiar title.

Last November, Dean Robinson had a severe attack of angina pectoris and, though he continued to perform his manifold duties in and out of the College throughout the long and extremely severe winter, his strength steadily failed until he was stricken with the last sudden illness.

John Joseph Robinson was born in Dublin on January 16th, 1852, and was, therefore, only sixty-four years old. He was the son of John Robinson, proprietor of the Daily Express newspaper, and was educated at Blackheath School and at Trinity College, Dublin, where he won the gold medal for Literature and History. His first curacy was in the East End of London, and there he labored until his health broke down and the doctor ordered a long holiday, which was spent in Egypt and Palestine. Returning to England, he accepted a curacy with an uncle at St. Leonard's, Sussex, from thence going to St. John's, Holborn, London. Here he married Hariet, daughter of Sir John Lubbock, third baronet, and sister of the first Lord Avebury, whose name is familiar among reading families everywhere. The wedding took place on June 18th, 1878, and six months later, owing to a desire to be near his mother during his father's illness. Mr. Robinson accepted a curacy in St. Matthias, Dublin. Henceforth until coming to Canada his work lay in Ireland.

It was his last curacy. In 1884, he was appointed rector of Killiskey, a beautiful little parish in County

Wicklow, and from there he was transferred to more important parishes, going in 1900 to the Cathedral parish of Waterford, where he performed the duties of both dean and rector, his predecessor, who was in ill health, still holding the title of Dean. Three years later he became rector of St. Anne's, Belfast, and Dean of the Cathedral; and in Belfast he spent eight strenuous and fruitful years. The cathedral was in course of building and when the nave was opened for service, which is all that has been built to this day, there was a congregation of some thirty souls only. But the Dean soon changed all that. In a short time the morning and afternoon choral services were attended regularly by five and six hundred, and the evening mission service by a thousand and more. The Dean nearly always preached at this evening service, which was attended chiefly by the poorer classes; and his custom was to wait at the door until time for service to begin that he might shake hands and say a kind work to the people as they came. Besides this service, he held a special mission every Thursday evening for the very poor of the slums, to which came men and women with babies in their arms and shawls on their heads. During the eight years of his incumbency at Belfast, Dean Robinson baptised about fifty babies every week. He never missed the eight o'clock Celebration, though it involved walking a mile. No man had a greater capacity for duty nor a greater love for the ministry of the Gospel. He was essentially a dispenser of spiritual things. The task of collecting money he disliked extremely, but this also was duty and he faced it with courage and with success. When he came to Belfast he found large debts; when he left, every indebtedness was paid, and the building as it stood was free of that burden. Also, for his sake, legacies have been left to the cathedral.

Responding to the call from the far Northwest, Dean Robinson came out to Edmonton five years ago and

threw his abundant energies into mission work; and speedily it was known that a fresh spiritual and intellectual force had come to the new country. And so it has been at St. John's College, Winnipeg, where he taught in both the Arts and Theological departments and where he preached in the College chapel and fulfilled various labours of love. Beyond the College and Cathedral of St. John's he was greatly in demand for other pulpits and platforms. There is no doubt that he wore himself out too early. In all his heavy labours in the Old World, and in the New, he had an ardent and wise and noble helpmeet in his wife, to whom our sympathy goes out in her great loneliness. After such long and faithful and loving service together, how good it would have been to grow old sharing in the rich quiet of its afterglow. The Dean knew his Browning thoroughly and Rabbi Ben Ezra's incomparable picture of old age and its contemplations must sometimes have been in his thoughts; also, that prospective retrospect, "By the Fireside," and its searchingly beautiful Alpine pictures with which his many holidays in the Swiss Alps made him familiar.

Although the years of active service in the Church had worn him down, when the war broke out the Dean offered himself as a chaplain for the front. He was disappointed in that, but he had satisfaction in his four sons who are serving the King, two in Flanders, one in England being incapacitated for foreign service, and the eldest, a clergyman, in a volunteer corps in Dublin. One son has received the Military Cross. He leaves two daughters; one is the wife of a naval commander, and the other is the wife of an officer in France.

Dean Robinson was an ardent and enthusiastic mountaineer of long experience, and he was a capital sailor. The great mountains and the lifting sea were both dear to him, but I think that he must have loved the mountains more. In youth, he and his brother owned a

ittle yacht in which they used to sail about in Dublin Bay and on the coast of Scotland. Always, he had been . keen sportsman—at Trinity College, captain of the ootball team. He joined the Alpine Club of Canada in 912, and attended the Camp at Vermillion Pass, where .e won all hearts. The camp was some distance from the graduating" mountains and there was much bad /eather. One very dismal day when the mental arometer of the camp fell low, the Dean improvised jolly ntertainments and told amusing tales until the members /ere in happy mood. At campfire he had many interest- ıg climbing experiences to relate, those experiences in ther mountain systems which our members are always) ready to hear. With Mrs. Robinson and their son, ıe Dean was at the Camp of 1914 in the Little Yoho 'alley. Mrs. Robinson was the chaperon of the camp ıd was as popular as he, taking charge of the choruses ıd other performances at campfire. They went on any expeditions and took great pleasure in the life of .e camp. At both the Vermillion and Little Yoho amps the Dean conducted the Sunday services, and no ıe who heard his mountain sermons will forget them. nd so it was when he spoke at the annual dinners of e Winnipeg section, of which he was honorary chair- an. He spoke with such charm and he had such ımour; and always the climax of his speech touched e finer things of the spirit. I remember how he oted, and praised Mr. Lloyd George for it in quoting, at now familiar passage about the great peaks of nour and duty and patriotism, and the white pinnacle sacrifice pointing to heaven. He seemed to put fresh :ality into the passage. But his own expression was vays literary and spontaneous. It had the real touch poetry. For, was he not a well-learned Irish gentle- ın and therefore a poet, receptive if not creative? As mountaineer, he carried deep in his heart the lessons beauty and truth which the mountains teach and he ıght less responsive climbers how to learn these

lessons. He understood the far-reaching and man sided influence of a national alpine club to Canad Though he knew that he would never again hear "th music of whistling stones and cracking ice" on a hig mountain side, he had expected to "take the road" to th Rockies this summer, where in lovely valleys betwee snowy ranges, both soul and body would find refres ment . . . And now his body rests under the oaks i the old cemetery by St. John's Cathedral. His ra and gallant spirit has climbed the last white pinnacle ar "aspired the clouds." In an aesthetic and spiritual sens he was the finest influence that ever came to the Alpi Club of Canada.

ELIZABETH PARKER.

J. B. McLAREN

We regret to have to record the death of Mr. J. McLaren, of Winnipeg, which occurred in Victoria th spring whither he had come to seek a milder climate.

He was born in 1855 at Carleton Place, Ontario, a graduated at Queen's University in 1878. He practis law in Ontario and in Manitoba, and in 1908 becar manager of the Canada Landed and National Investme Co., in the latter province.

In 1908 he joined the Alpine Club of Canada, and 1909 attended the Annual Camp at Lake O'Hara. The he, with Mrs. McLaren, graduated to Active Membersh on Mt. Huber. He paid several other visits to the Cl House at Banff, of whose beauties he had a ke appreciation.

He had an intense love for the mountains, the woo and the waters, and spent many summers camping a canoeing, welcoming many guests but always insisti that he should monopolise the work and they should r and enjoy.

We extend our sympathy to Mrs. McLaren, w shared her husband's love of Nature and whom we ho to see among the mountains for many years.

ALPINE CLUB NOTES

The Scouts

Every member who has been at the annual camps will remember ıe boys who have acted as scouts and helped the newcomers in any ways. They also are doing their share at the front. Many ill recall John Bone who was at the Paradise Valley Camp and any succeeding ones. After a distinguished career at McGill niversity he went to the front as a member of the Flying Corps. ne night volunteers were called for to undertake some especially ıngerous duty. Among those who answered the call was John one. He never returned. Something happened to his machine; he as drowned and his body washed ashore. He sleeps in Belgian ırth, for which he fought so well.

W. Jewitt is in the trenches with the Princess Patricias; inton is in England, training; John Colville is with the University attalion; and Gordon Cameron has recently enlisted with the rtillery. Dalton McWilliams enlisted in the University Battalion, ıt death took him ere his day; before he had chance to fight for is country or develop the gifts which he so markedly possessed.

Crowsnest Mountain and Mt. Windsor

Mr. Godsal sends an interesting account of his ascent of rowsnest mountain last summer by a "back stairway" in distinction) the ordinary route or "grand staircase." His exploratory trip to ıe north side of the mountain was hard, as all necessaries had to be ırried through miles of forest. The next day, August 7th, after ollowing the base of the precipices which encircle the upper part of ıe mountain, he found a narrow "shute" on the north side near here a rocky ridge runs out, by which he got above the precipices, ıe rest of the way to the summit being fairly easy. The climb was ıther spoiled by the quantity of loose stones on the steep slopes. e found an easy way home by a trapper's trail. The start for the ıountain can be made from Coleman or from Sentinel siding, C.P.R. bout 4½ miles from the latter and 7 miles from Coleman is a ımber camp. Here a careful search must be made for the trapper's ail, leading through the forest to the north side of the mountain. ; is fit for a horse and a grassy spot can be found near where the scent begins. Crowsnest Mountain is 9,138 feet, and the lumber ımp 4,700 feet. The records on the summit show the names of dward Whymper, Tom Wilson and two Swiss guides, on June 28th,)04; P. D. McTavish, Alex. Gordon, Laura Marshall, Helen Hatch, . O. Hyde, Gilbert Marshall, on August 20th, 1907; Robertson, hillips, Norris, August 21st, 1908. P. D. McTavish left no record of ıe climb described in the Journal for 1907.

On August 31st, Mr. Godsal again ascended Windsor Mt (formerly Castle or Turret) by a new route from the west from the valley of Castle River, and visited both the southeast and northwest peaks. The turret on the latter is a remarkable rock formation perched on the edge of great precipices on its three sides. The ascent was not difficult and horses can be taken up the valley to where the ascent begins. The highest peak is 8,360 feet. The river swarms with fish and game of all kinds, including elk, which are abundant.

REVIEWS

Travels in Alaska—By John Muir*

Alaska Days with John Muir—By S. H. Young**

In these volumes of Alaskan travel and biography we are brought into close acquaintance with that great lover and interpreter of nature and of the mountains, John Muir. After a decade of flower, tree and glacier study among the Sierra Nevada mountains of California, Muir visited the glacier-hung Cascades, and then sailed northward to explore the vast ice-fields of Alaska.

Muir's first trip, in 1879, was in company with the religious advisers of Mr. Young who had recently entered the field as missionary to the Indians of southeastern Alaska. The party established headquarters at Fort Wrangel, from which they made frequent trips to the Indian villages of the surrounding region. They chartered a little steamer and explored the canyons of the Stickeen, finding very wild and beautiful scenery with which Muir and Young determined to become more closely acquainted. Leaving the steamer of an afternoon, Muir set a rapid pace through ten miles of Alaskan jungle until they came to the slopes of an 8,000-ft. mountain, from whose summit they intended to view the sunset. Here they revelled in the Alpine flower gardens, gathering specimens, while Muir talked to the flowers as personally as if he belonged to their own family.

They crossed a small glacier and climbed a rather difficult cliff where they paused for a glorious view of the valley of the Stickeen. Realizing that they must hurry to reach the summit, Muir fairly slid up the mountain, while Young did his best to keep up. Trusting his foot to an uncertain rock, Young suddenly found himself with both shoulders dislocated, sliding rapidly down a gully that ended in a thousand-foot precipice. He was unable to stop until he actually overhung the edge. Muir could not reach his friend at first, but, whistling to impart courage, he ascended to a point where he crossed the gully and then descended to a tiny ledge from which he grasped Young's collar. Holding to the cliff with one hand, with the other Muir swung this helpless man out over its face, and, pulling him in, grasped his collar with his teeth. Then, bidding him work his feet, this man of iron climbed the dozen feet of cliff to safety. Few would have attempted to return that night, but Muir did not hesitate. Down, over the glacier and through miles of unknown canyon, Muir carried his friend, reaching the steamer in the morning. After spending several hours in helping to get Young's shoulders in place, Muir led the others of the party on a glacier exploring expedition, returning in the evening as "fresh and enthusiastic as ever."

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* Boston: Houghton Mifflin, 1915, $2.50 net.
** New York: Revell, 1915, $1.00 net.

With this introduction a life-long friendship was insured. Muir explored the country and traversed the glaciers alone, returning with glowing accounts for his friend. Together they sailed northward in a canoe, guided only by Vancouver's early chart, mapping the coast as they went, and exploring its many fiords. They took the first census of the Indian villages, and had many interesting experiences among the natives. "Muir was a devout theist. . . . He saw design in many things which the ordinary naturalist overlooks, such as the symmetry of an island, the balancing branches of a tree, the harmony of colors in a group of flowers, the completion of a fully rounded landscape." Muir saw God working in the heart of Nature, while Young found Him in the heart of his friend.

Glacier Bay was visited and the great glacier that was later to bear Muir's name was explored by him. On the return voyage the Davidson and Taku glaciers were seen. To one who is familiar only with inland glaciers, the great rivers of ice which tumble into the sea along the Alaskan coast are a revelation. Who can paint the opalescent hues of their sea-washed cliffs, or the intense coloring of their floating castles of ice?

The following year Muir returned to Alaska and with Young set sail in an Indian canoe in search of the unknown. They entered Sum Dum Bay finding wonderful scenery, and followed up a narrow fiord that led them past precipitous walls rising for thousands of feet, whose tiny ledges are hung with ferns and flowers, and whose summits are glacier-crowned. Finally a glorious sea-filled valley opened before them which they appropriately named Yosemite Bay. Down its mighty cliffs tumble snowy waterfalls, while at its upper end a deep-toned glacier hurls its bergs into the peaceful waters of the bay. We believe that eventually this fiord will be sought and recognized as one of unique grandeur.

The climax of the trip was reached at the Taylor Bay Glacier, which Muir started out to explore alone on a wild, stormy morning. He was joined by his inseparable companion, Mr. Young's little dog, Stickeen. Together they ate a crust of bread that was to be their only food for seventeen hours of unremitting toil, and then climbed upward upon the deeply crevassed surface of the glacier. Here they worked their way for seven miles amid the fog and rain until they reached the far side of the glacier. It was five o'clock when they started back across the glacier, and a driving snowstorm hid all from view. Losing their way among the crevasses they often had to work up and down for miles in order to find a bridge over which they might advance a few feet. Difficulties seemed only to increase Muir's power to overcome them, and he pushed on at top speed. Finally they reached a chasm eight feet in width which had to be crossed in order to advance. Its farther side was the lower one, thus preventing return; but, taking the risk, they leaped and found themselves upon an island of ice two miles in length. Their only hope of escape was along a knife-edge sliver of ice that stretched like a cable for seventy-five feet across the bottomless crevasse. To reach it Muir had to cut his way down the vertical ice for eight or ten feet, then astride he worked his way by inches, fighting the furious gale in the darkness as he leveled a narrow pathway along the arête for Stickeen to follow. He finally arrived at a wall of ice up which he cut hand and foot holds to safety. Reaching camp at

ten o'clock he recounted his adventures for a couple of hours, and, the next morning, got up at daylight and was off with Stickeen on an all-day climb of a high mountain!

In 1890 Muir undertook a serious exploration of the glacier bearing his name. Alone he dragged a hundred-pound sled far up its rough and dangerous surface. With no complaint of hardship he rejoiced in the radiance of the snow crystals melting in the sun, but, gazing too continuously without protection, he nearly became snow-blind. Returning to the bay, he left in his canoe in search of other glaciers. Attempting to pass an icy barrier, he entered a passage-way four feet wide and two hundred feet long. When well within their grasp, he discovered the ice walls were closing upon him, and he had barely time to retreat before they came together with a growling crunch.

Muir's descriptions of the unsullied whiteness of the great Fair-weather Range, of the alpen-glow that flames on virgin peaks and of the fountains of radiant spray that shoot upward at the birth of ice bergs, are of supreme beauty. He pictures a phosphorescent sea that on darkest nights sends "luminous wave foam dashing against every bluff and drifting berg"; and he tells us of the unpaintable arctic aurora beneath whose wonder and mystery he passed long, worshipful nights.

In beauty of style John Muir is unsurpassed among the interpreters of nature, while his intimate acquaintance and sympathy with flower, tree and mountain enable him to reveal their messages to us in a language which all may understand. We listen as it were to their own voices, and with Muir give thanks to God. Many who have known Muir in person or through his writings, can say with Dr. Young: "The world has produced but one John Muir, and to no other man do I feel that I owe so much; for I was blind and he made me see!"

LeRoy Jeffers.

The Mountain—By John C. Van Dyke*

The title of this book may convey a wrong impression to any one who takes it up by chance—the most delightful way of discovering a book. "The Mountain" is not any definite peak; it refers to the whole mountain entity. The book is composed of a series of essays or reflections upon the mountain world from the aesthetic point of view, which perceives beauty everywhere. In this it somewhat resembles "The Alps" by Sir Martin Conway, though, being written for the American public, it contains more direct instruction.

Professor Van Dyke impresses the important fact upon his readers that it is impossible to compare with advantage one mountain range with another; each has its own particular glory. It is unfortunate that his first view of the Rockies should have been apparently from too far south to appreciate that wonderful effect with which all who have approached them from the Canadian plains are so familiar—the appearance of a huge rocky wall, tipped with

* Charles Scribner & Sons, 1916, $1.25 net.

snow, a barrier beyond which man should not pass—the end of the world.

He notes the desolation of the western mountains. The Indians always feared them, believing, with a more ancient people, that the Great Spirit is a God of the Hills. They do not hunt, they do not name the peaks. The Indian names have been mostly given by the white man.

Professor Van Dyke contends that the drawing of the hills is their most commanding feature. This is true—at first. But, apart from the glory of the heather-clad hills, that blaze of purple, and the velvety greens of forest and of alpine meadow, the mountain tops have also, more especially perhaps in European countries, their kingly state, whether they be pyramids of rock or reveal the secrets of the snow. Any one who has been able to watch a mountain chain day in and day out under the lights and shadows of the passing clouds, realizes their abiding charm is that of light and shade, a blaze of rose, or the soft harmonies of grey and purple which linger in the memory.

It is interesting to note the author's explanation of the blazing whiteness of the upper snows, "brighter than the sky at noon day." "It is the sun face that we are seeing in the snow, the shadowed back that we are seeing in the sky." At such heights the shadows are but another form of light, the blue shadows of the glaciers have a vivid intensity of their own.

The high mountains wear Gargantua's colours. "White doth signify gladness, pleasure, delight and rejoicing; and the blue, celestial things."

The book is light to hold, well printed, and a charming companion for the fireside when one's holiday is past and one dwells with happy recollections.

S. H. Mitchell.

On Alpine Heights and British Crags—By George D. Abraham*

In old fashioned cookery books, such as "Meg Dods" which amused Sir Walter Scott, a recipe for a dish is often followed by "Another Way." To those many readers who are familiar with Mr. Abraham's books his new work may be thus described. The plan is familiar. There are the stories of climbs in continental Europe as it was before the war, the chapters of sound advice to beginners and the accounts of climbs in his heart's home, the rocks of the British Isles.

The present writer is, unfortunately for himself, unable to follow any of the author's climbs in detail. He never was in the Dolomites nor has climbed (really climbed) in the English hills. In the gallery of his life one of the most beautiful pictures is a view from Friar's Crag across Derwentwater up Borrowdale to "far Glaramara," when all was steeped in moonlight and faint mists were rising from the lake.

---

* Houghton Mifflin Co., 1916, $2.50.

The book, naturally is written from the inside, for people who know and for the ordinary reader the accounts of the climbs are somewhat monotonous, suggestive of a constant diet on pemmican. It is not given to many to write with the inspiration of Leslie Stephen or Guido Rey, to whose books one returns with ever fresh interest.

Mr. Abraham's new book suggests that he is growing out of the heresy that climbing is the whole art of mountaineering. We wish he could have some experience in the Rockies or—at a more suitable season—in the Caucasus. He would find, as the trained guides find, the charms and real difficulties of pathfinding in an untravelled country and on an unknown peak. There is always a right way, not necessarily the easiest, up a mountain. It takes a real mountaineer to find it.

Ice and snow have their charms and their especial difficulties not obvious to the tyro which take much experience and—though this is heresy to the rock climber—brain power to master.

As usual Mr. Abraham's advice to less experienced climbers is invaluable. He insists on the golden rule that the only good climbing is safe climbing, the rule which has made the British climber, whose record for skilled and difficult mountaineering is second to none, while not of course immune to accident, the most fortunate of the people who climb. In roping on rocks he advises the most skilful man should lead, the strongest and steadiest should be *second* on the rope, that he may be able to belay and hold either of the others. He continues: "Those who have learnt *all* about rock-climbing at home in summer and winter should manage safe guideless climbing in the High Alps *after two seasons with first class guides.*" (The italics are ours.)

There are, he states rightly, two unavoidable risks: sudden weather changes for the worse and falling stones. There is one risk which he sternly and justly forbids any man to take, that of climbing alone. It has undoubted attractions, but if it is wrong on the much frequented European mountains, it is doubly criminal in the lonely mountain regions of the west.

The book is illustrated with many of the characteristic Abraham photographs which are always a joy. Perhaps the most original illustrates the ascent of the Mönch in a storm. The print is large and clear and the book is eminently readable.

S. H. Mitchell.

OFFICIAL SECTION

REPORT OF PTARMIGAN LAKE CAMP

The tenth annual camp of the Club was held in Ptarmigan Lake Valley, about half a mile below the pass, from July 13th to 26th, 1915. It was pitched in the little valley of Phacelia Lake, below Mt. Richardson, running into that of Corral Creek, and was not visible until it was almost reached. The first sail in sight was the lofty canvas of the dining tent. Owing to the conditions of the site, it was pitched narrower and much higher than usual. The effect was not ornamental, but, as after events showed, the lofty ceiling was inspired by a wise if unconscious foresight. When the winds blew and the snow came members were able to build a large fire with safety inside the pavilion and enjoy all the comforts of a home.

The site of the camp was a beautiful one, affording magnificent views of the mountains of the Bow Valley. On the first evening the camp fire was lit on a projecting point backed by tall trees commanding this view in full splendour. Only those who know the mountains well can appreciate the glory of form and coloring. In the words of a master of English, written of a widely different scene: "After you have once seen it the remembrance remains with you like a tune from Mozart, which he seems to have caught out of heaven and which rings sweet harmony in your ears for ever after! It's a benefit for all after life! You have but to shut your eyes and think and the delightful vision comes smiling back."

It was never to be quite the same again. The next day the weather changed, and the Club "enjoyed" the worst experience of the kind it ever suffered in camp. Heavy falls of wet snow rendered climbing too dangerous to be attempted and camp conditions by no means of the pleasantest. However, every one present made the best of things and, when the fine weather came later, appreciated it all the more.

A subsidiary camp was placed at Hatchet Lake near the divide, between the headwaters of the Red Deer River and Little Pipestone Creek, a delightful neighborhood, quite unknown, and very convenient for the ascent of either the White or Black Douglas.

A distinguishing feature of the Camp was the Patriotic night held around the Camp Fire on the evening of July 17th. Some eighty members of the Club are under arms for their country; their names were recalled and an enthusiastic standing vote of appreciation of their patriotism was passed. Account also was given of the motor ambulance which the generosity of the Club has provided for wounded soldiers.

W. N. Rowell, leader of the opposition in the Ontario legislature, made a stirring address dealing at first with the work on the Gallipoli peninsula and ending with an impassioned appeal to all to help the

Photo, A. B. Dawson

PTARMIGAN VALLEY CAMP

Photo, A. B. Dawson

CAMP AT HATCHET LAKE
Red Deer Valley

Photo, F. W. Freeborn

PTARMIGAN LAKE AND MT. REDOUBT

Photo, F. W. Freeborn

VALLEY OF BAKER LAKE

Black Douglas and White Douglas on Left

cause of right by every means in their power. American members expressed their keen sympathy with the Allies, and a number of other most interesting and instructive addresses, dealing with war matters, were given. The meeting closed with an impressive singing of the National Anthem, to which the mountains around joined their echoes.

During the camp word was received of the death of Sir Sandford Fleming who had been its Honorary President from the first organization in 1906, and the flags were lowered to half-mast.

Owing to war conditions the attendance was much smaller than usual, 103 being placed under canvas. They were drawn from the following places:

CANADA

British Columbia: Invermere, Revelstoke, Vancouver, Vernon, Wilmer.
Alberta: Banff, Calgary, Cowley, Edmonton, Green Court, Iron Springs, Lethbridge, Macleod, Sarcee Camp, Tomahawk, Westlock.
Manitoba: Virden, Winnipeg.
Ontario: Ottawa, Toronto.

UNITED STATES

Indiana: Lafayette.
Maryland: Baltimore.
Massachusetts: Boston.
Minnesota: Minneapolis.
New Jersey: Summit.
New York: Brooklyn, New York.
Virginia: Pittsburg, Alexandria.

OVERSEAS

England: Darwen.
Switzerland: Interlaken.

There were present members of the English, Swiss, American and New Zealand Alpine Clubs, of the Appalachian Mountain Club, of the Mazamas and of the Royal Geographical Society.

THE ANNUAL MEETING

In accordance with the Constitution, the Annual Meeting was held at the camp fire circle on July 22nd, 1915. In the absence of the President and the Vice-Presidents the Director took the chair.

An address of greeting from the President was read, regretting his unavoidable absence, and calling attention to the good work the Club was doing not only among its own large membership, but among people at large in spreading the knowledge of the Canadian mountain region.

Communications were then read from Hon. Mr. Justice Galt, Lieut. Norris Irven (who was wounded at the front), Mr. Hayter Reed and Miss M. L. Jobe.

The Director submitted his report, giving the history of the Club for the last year and awakening new enthusiasm among the members for the serious work of the Club.

A letter from the Hon. Treasurer was read, stating the financial

condition of the Club and impressing the necessity of prompt payment of fees that the Club in its turn might carry out its obligations.

The Secretary-Treasurer's report was read giving details of the Club's membership and urging the younger members to take up their share of the burden of the work.

Mr. N. W. Rowell then moved, in an eloquent speech, that a resolution be sent to the members gone or going on active service, conveying the Club's appreciation of the splendid way they had responded to the call of the Empire, at the same time bringing honour to the Club. The motion was seconded by Mr. Voss and carried.

The resolution was later sent and many acknowledgments received expressing great gratification and enthusiasm for the Club.

Votes of thanks were passed to the Governments of the Dominion and of Alberta for their steady financial support of the Club and appreciation of the work it was doing for the country at large.

Votes of thanks were also passed to the different authorities of the C.P.R., whose aid contributed largely to the success of the Camp.

A vote of thanks was passed to Mr. W. J. S. Walker for his continued kindness in supplying the medicine chest which he had so generously given.

A vote of thanks was passed to the Director, the Secretary-Treasurer and those under them in appreciation of their untiring work in making the camps a success and a delight. The name of Mr. C. H. Richardson was specially mentioned.

The meeting then adjourned.

REPORT ON MOUNTAINEERING AND EXPEDITIONS

Among the principal ascents made were: Black Douglas (11,015 feet), Mt. Richardson (10,115 feet), Ptarmigan Peak (10,060 feet), Pika Peak (10,015 feet), and Mt. Redoubt (9,510 feet). Two ascents of the Black Douglas were made; the climb of the White Douglas was rendered impossible by the dangerous condition of the snow. Pika Peak afforded a really fine rock climb.

There were very many attractive expeditions threading the various valleys. One of the charms of the region is the number of lakes it contains. From the summit of Ptarmigan Peak sixteen were counted of varying size.

The professional guides were Ernest Feuz and Christian Jorimann, lent by the C.P.R., and Conrad Kain whom Mr. Frind kindly spared on several occasions.

Twenty-three graduated to active membership. Their names are given below:

Mt. Richardson, July 18

A. L. Harkness
A. W. MacMichael
C. E. W. Stringer
G. D. Whitaker

Mt. Ptarmigan, July 19

Mrs. G. E. Vincent
J. H. Vincent
H. S. Hall

Photo, A. B. Dawson
WALL AT END OF LAKE MYOSOTIS

Photo, L. C. Wilson
SUMMIT OF PIKA PEAK

Photo, A. B. Dawson
A JOLLY GLISSADE

Photo, G. W. Patterson CAMP DURING THE SNOW STORM

Photo, F. O'N. Fisher
BAGGAGE ARRIVING AT HATCHET LAKE CAMP

Photo, G. W. Patterson

Mt. Richardson, July 19
Miss H. D. Banks
Miss M. C. Jamieson
Miss H. Moyle
Miss M. Macoun
Miss M. L. Maclean
Miss B. McKinley
Miss P. I. Rupp
W. E. Broad
J. L. Fawcett
C. W. Noble
P. Van Eyk

Mt. Ptarmigan, July 20
Miss C. R. Filer

Mt. Richardson, July 20
G. H. Theiss

Mt. Richardson, July 22
Miss M. C. Rowell

Mt. Richardson, July 23
Miss C. Christie

Mt. Ptarmigan, July 25
Dr. D. A. Taylor

THE CLUB LIBRARY

There have been several additions to the Club Library during the past year. Noticeable is Miss Finlayson's gift of two of the parts, beautifully bound together, of Captain Palliser's Reports of his explorations between the Red River and the Pacific. It is very seldom any parts of this exceedingly rare book are to be found. The Minister of the Interior has presented the Atlas of Canada, containing statistics of the utmost value. The Government of New Zealand has most generously given us "The Conquest of Mt. Cook," by Miss Du Faur, and Mr. Gooding's popularly written "Picturesque New Zealand."

We have received the usual exchanges with the exception of "La Montagne," the journal of the French Alpine Club, and the Journal of the Tourist Society of Dauphiny. Life is too strenuous in France now. Naturally also we have not received the Journal of the German-Austrian Club.

Among books we should like to possess are:

Index and Maps to Capt. Palliser's Reports, pub. 1865.
Journals of Capt. Palliser (including Sir James Hector's diary), pub. 1863.
Twenty Years in the Himalaya. C. G. Bruce.
Explorations of the Caucasus. D. W. Freshfield.
Building of the Alps. T. G. Bonney.
Mountains: Their Origin, Growth and Decay. Jas. Geikie.
The Alps. Sir M. Conway.
Complete Mountaineer. G. D. Abraham.

The list of additions follows:	Donor
Atlas of Canada	Minister of the Interior
Conquest of Mt. Cook. F. Du Faur	New Zealand Government
Forty Years in Canada. S. B. Steele	A. O. Brigden
Karakoram and Western Himalaya. F. de Filippi	LeRoy Jeffers
The Mountain. J. C. Van Dyke	Chas. Scribner & Sons
On Alpine Heights and British Crags. G. D. Abraham	A. O. Wheeler
Our American Wonderland. G. W. James	LeRoy Jeffers

Alaskan Glacier Studies. Tarr and Martin - - - - - - - - -	National Geographic Society
Reports on Explorations between Red River and Pacific. John Palliser, 1859 and 1860 - - - - - - - - -	Miss A. Finlayson
Peaks and Precipices. Guido Rey - -	Miss J. L. McCulloch
Picturesque New Zealand. P. Gooding	New Zealand Government
A Search for the Apex of America. Annie S. Peck - - - - - - -	W. E. Stone

SIR EDMUND WALKER, C.V.O., LL.D., D.C.L.
Honorary President, Alpine Club of Canada

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CANADIAN ALPINE JOURNAL

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Copies of the current and past issues of the Canadian Alpine Journal can be obtained from the Secretary-Treasurer, S. H. Mitchell, Sidney, Vancouver Island, B.C., from whom also the prices of the back numbers can be obtained.

All applications for copies must be accompanied by money order or postal note. Cheques not accepted.

By furnishing the address you can have copies sent to friends.

LIEUT-COL. C. H. MITCHELL, C.M.G., D.S.O.
Officer's Cross, Legion of Honour
Order of Leopold
Vice-President A.C.C.

LIEUT.-COL. R. P. CLARK, M.C.

CANADIAN ALPINE JOURNAL

PUBLISHED BY
VOL. VIII. THE ALPINE CLUB OF CANADA

MEMBERS ON IMPERIAL WAR SERVICE

L. S. Amery ..... 14th Royal Warwickshire
(Captain, General Staff)
W. A. Alldritt ..... 90th Regiment
(Sergeant, prisoner)
H. Anderson ..... 4th Can. Field Ambulance
(Major, M.O., Croix de Guerre)
Mrs. H. Anderson ..... Nurse
R. G. Annand ..... 21st Reserve Batt. (Alta.)
I. N. Austin ..... 101th Field Ambulance

Rev. W. R. Ball ..... 49th Battalion
(Captain, wounded)
F. C. Bell ..... Asst. Dir. of Medical Service
(Major, M.O., wounded, mentioned in despatches twice)
H. Bennett ..... Divisional Signallers
M. Bright ..... Royal Engineers
(Lieutenant, wounded)
W. E. L. Broad ..... 137th Battalion
(Lieutenant, killed in action)
E. W. Bickle ..... 48th Highlanders
(Captain, wounded)
F. C. Brown ..... 1st Can. Reserve Batt. (B.C.)
(Lieutenant)
W. C. Bruce ..... Canadian Engineers

G. Cameron ..... Artillery, 15th Brigade
K. C. Campbell ..... 43rd Battalion
(Captain)
R. J. Casement ..... Canadian Engineers
(Corporal, D.C.M.)

C. G. Chinneck.....13th Mounted Rifles
J. A. Clark .....72nd Battalion
(Lieutenant-Colonel)
R. P. Clark.....14th Battalion
(Lieut.-Col., Staff Officer, Military Cross, wounded)
Miss M. A. E. Clarke.....V.A.D.
C. D. Creighton .....Canadian Artillery
(Lieutenant)

G. Darling .....King's Royal Rifles
(Lieutenant)

A. Eastham .....
J. E. C. Eaton.....Artists' Rifles
(Lieutenant)

Rev. W. F. O'N. Fisher.....R.A.M.C.
C. E. Fortin .....Lord Strathcona Horse
(Captain, M.O.)
H. W. A. Foster.....20th Battalion
(Major, D.S.O., Military Cross and Bar, twice wounded)
W. W. Foster.....2nd C.M.R. Battalion
(Major, D.S.O., wounded, mentioned in despatches)
T. Fitzsimon .....Princess Patricias L.I.

Rev. A. Gillies-Wilken .....Canadian Mounted Rifles
(Captain, prisoner)
Rev. A. M. Gordon .....4th Canadian Division
(Major, M.C.)
C. W. Gray.....Headquarters Staff
(Wounded)
W. F. Guild.....52nd Canadian Infantry
(Major, died of wounds, mentioned in despatches)
J. A. Gunn .....No. 1 Can. Gen. Hospital
(Lieutenant-Colonel, M.O.)
J. N. Gunn .....R.A.M.C.
(Captain, M.O.)

G. L. Haggen.....Oxford and Bucks Regt.
Mrs. J. W. Henshaw .....
(Hon. Captain)
J. A. Hesketh.....Lord Strathcona Horse
(Lieutenant-Colonel, C.M.G., D.S.O., mentioned in despatches)
G. E. Howard.....Artists' Rifles
(Quartermaster-Sergeant)
P. M. Humme .....Royal Artillery
(Lieutenant)

MAJOR W. W. FOSTER, D.S.O.
Vice-President A.C.C.

MAJOR F. C. BELL
Past Vice-President A.C.C.

J. R. N. Irven.....3rd Battalion, Rifle Brigade
(Captain and Adjutant, wounded)
A. C. C. Johnston.....50th Battalion
(Captain, M.O., M.C.)
S. L. Jones.....Princess Patricias L.I.
(Major, prisoner, died of wounds)
Mrs. S. L. Jones.....Nurse, French Red Cross
(Lieutenant)

F. V. Longstaff .....5th Batt., East Surrey Regt.
(Major)
T. G. Longstaff .....General Staff
(Lieutenant, M.O.)

A. J. B. Milborne.....3rd Field Ambulance
(Captain, mentioned in despatches)
C. H. Mitchell .....Premier Staff Officer, Second Imperial Army
(Lieutenant-Colonel, C.M.G., D.S.O., Officer's Cross, Legion of Honour, Order of Leopold, mentioned in despatches)
Miss M. J. Monk.....Nurse
A. B. Morkill .....7th Battalion
(Lieutenant)
R. C. Morrison.....187th O. Battalion
J. C. McHutcheon .....Sherwood Foresters
(Lieutenant, died of wounds)
W. C. McNaught.....84th Battalion
(Captain)
Jas. G. McDougal.....202nd Battalion
(Lieutenant)
Miss E. McPhedran.....Nurse
E. S. MacGregor .....187th Battalion

G. L. Oliphant .....Battery 71, C.F.A.
(Corporal)
Sir James Outram .....
(Major)
J. C. Oxborough.....12th Can. Mounted Rifles
(Corporal)
W. Oxborough.....12th Can. Mounted Rifles
(Wounded)

R. E. Patterson.....Fort Garry Horse
(Lieutenant)
W. F. M. Pearce .....1st Montreal Regiment
(Major, mentioned in despatches, wounded)

E. F. Pilkington.....6th Batt., Manchester Regt.
(Major)
J. M. Poucher.....51st Battalion
Rev. G. S. Provis.....Attached 15th M.G. Co.,
(Captain)

C. B. Reilly.....89th Battalion
(Captain, wounded)
C. B. Reynolds.....9th Can. Mounted Rifles
(Wounded)
A. E. Robertson.....5th G.A.
(Captain)
F. A. Robertson.....47th Battalion
(Major, wounded)
Jas. W. Ross.....Orpington Hospital
(Captain, M.O.)

C. F. Savage .....Northumberland Fusiliers
(Lieutenant, wounded)
Miss J. T. Scott.....Nurse
G. M. Smith .....Princess Patricias L.I.
(Captain, M.C.)
R. H. Smith .....4th Field Ambulance
(Died of wounds)
G. R. Street .....3rd Field Ambulance
(Corporal)

E. L. T. Taylor.....Royal Garrison Artillery
(Lieutenant)
T. J. Taylor.....39th Battalion
(Lieutenant)
J. E. Tilleard.....
F. Trant .....14th Battalion
(Wounded)

S. J. Unwin.....Canadian Artillery
(Sergeant, died of wounds)

Miss H. Walcott .....Nurse
P. A. W. Wallace.....Divisional Signallers
Miss K. Walker.....Nurse
H. Watts .....
(Captain)
A. W. Wakefield.....
(Captain, M.O.)
O. Q. Warren.....Canadian Mounted Rifles
(Lieutenant)

MAJOR H. W. A. FOSTER, D.S.O., M.C.

A. F. Wedgwood .....5th Batt., North Staffordshire Regiment
(Captain, killed in action)
H. Westmorland .....Canadian Mounted Rifles
(Lieutenant)
E. O. Wheeler.....King George's Own Sappers and Miners
(Captain, R.E., Military Cross, Cross Legion of Honour, mentioned four times in despatches)
Rev. G. D. Whitaker .....
(Captain)
E. N. White .....1st Batt., Middlesex Regt.
(Lieutenant)
K. H. White.....Motor Transport Service
Rev. R. B. Winser.....
(Captain)
K. D. Woodworth.....Yacht Patrol
(Sub-Lieutenant)

J. R. Young .....H.B.M.G.C.
(Lieutenant)

THE AMERICAN ALPINE CLUB

The beginning of the New Year was signalized by the receipt of a telegram from the American Alpine Club, which, together with the reply of the Alpine Club of Canada, is printed below. The strong sense of fellowship between mountain men has seldom been more strikingly evinced. This fellowship has now spread to the entire American and British nations. It is hoped it may never be broken.

To the Alpine Club of Canada,
Sidney, Vancouver Island, B.C.

We take pleasure in transmitting the following minute unanimously adopted by a standing vote at the Annual Dinner of the American Club:

The members and guests of the American Alpine Club, assembled in the City of New York, while affirming their undivided allegiance to the government of the United States, desire to place on record their deep sympathy with the English nation in the mighty struggle for the liberties of mankind in which it, and its Allies, are now engaged. Although citizens of a neutral nation, we share with the subjects of England those unspeakably great traditions of freedom, of justice and of law, which are the common inheritance from the mother nation of all of the peoples of the English-speaking world. To a struggle which involves the survival of that inheritance we cannot, as individuals, remain indifferent. We desire to place on record our deep admiration of the heroism and self-sacrifice shown by England and its Allies; to express our absolute confidence that such heroism and self-sacrifice insure the ultimate triumph of justice and the continuance of freedom in the world, and to assure our brethren of The Alpine Club and of the Alpine Club of Canada of our deep and heartfelt

sympathy in this hour of their suffering and of splendid self-sacrifice in the cause of mankind.

Chas. E. Fay (President),
R. H. Chapman (Secretary).

[REPLY]

R. H. Chapman, Secretary, American Alpine Club,
2029 Q Street, Washington, D.C.

The Alpine Club of Canada very deeply appreciates the splendid resolution of sympathy with the English nation and its Allies adopted by the American Alpine Club at its annual dinner on the 30th December. We feel that the sentiments therein expressed are worthy of the best traditions of the great American nation, that they are sent in a most friendly spirit and that they will lend strength to our endeavors to carry the war to a successful issue, thereby restoring the rights of small nations and freeing them from oppression and slavery. Copies sent to all sections.

Arthur O. Wheeler (Director),
S. H. Mitchell (Secretary).

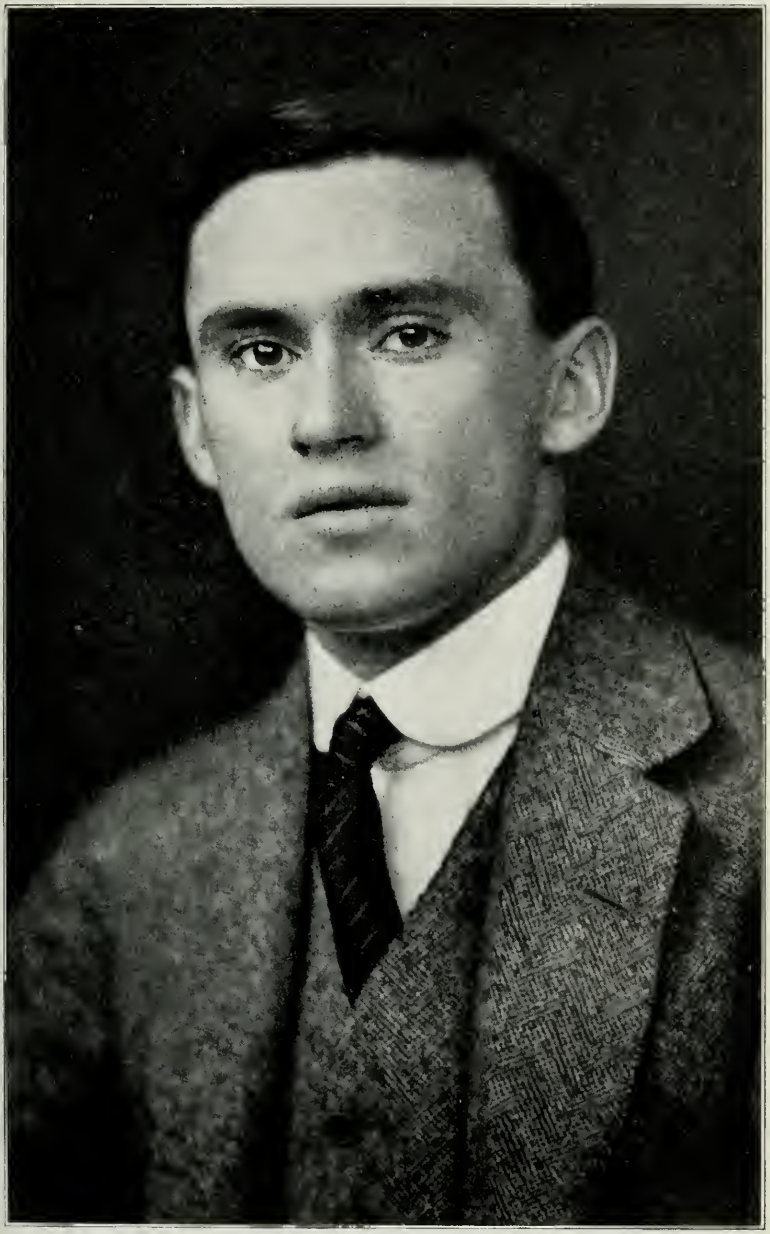
GREETING

By Sir Edmund Walker

I have been *directed* (that being, I suppose, the right word to use when the most potent influence in the Alpine Club issues a decree) to write an article for the Alpine Journal. As I am not a writer and know practically nothing about alpine climbing this is, like the ascent of certain mountains, a tall order. Before I begin, however, I wish to express my pride as well as my surprise at being elected Honorary President of the Club, to fill the place of one of the greatest of Canadians, the late Sir Sandford Fleming, K.C.M.G. Although I am not a climber, it has been a keen pleasure to me for many years to be a member of the Club, and no worshipper from a safe distance has more deeply admired its many feats, its climbing, its scientific work, its glorious photographs, its camp life and good fellowship and all the other delightful evidences of what may be enjoyed "far from the madding crowd's ignoble strife," and if I can serve the Club in any other way than by ascending mountains, I am at its command.

I have never doubted the usefulness of the Alpine Club, nor can I quite understand the attitude of those who regard it merely as an association of men and women bent solely on the gratification of their own pleasure, although, even if there were no loftier motives involved, the Club would still rank high among human institutions. We call ourselves a civilized community, but we still know so little about our own country that the exploration and description of our mountains constitute in themselves a great addition to our knowledge and when such descriptions are accompanied by a wealth of photographs, not only of exquisite art as photographs, but portraying objects beautiful, grand

CAPT. E. O. WHEELER, M.C., R.E.
Croix de Chevalier, Legion d'Honneur



CAPT. G. M. SMITH, M.C.

seductive, terrifying, revealing, indeed, the wonders of our mountains in every phase discoverable to the ardent members of the Club, how can we hesitate to praise? It may be said that we might have all this from enthusiasts who have no real knowledge of mountains, except the art of climbing them, and little perception of beauty beyond what the camera can discover. The Alpine Club, however, has earned most positive distinction by the scientific knowledge its members have displayed in geology and physical geography, in topography and cartography and in the study of the flora and fauna of our western mountains. Canada owes so much to the Club in these respects that I may be excused for urging strongly that its claims to public recognition be more generally acknowledged.

The members of the Club have not in their enthusiastic devotion to its objects, forgotten their duty to the Empire at this grave moment. The last copy of the Journal shows that 89 members of the Club are on active service, a very large proportion, indeed, of our membership. Of these we have lost seven, while sixteen have been wounded and two are prisoners. Eight have been mentioned in despatches, one of them twice and another four times. Six have won the Military Cross, four the D.S.O., one the C.M.G., two the Cross of the Legion of Honour and one the Croix de Guerre. I do not personally know many of those who have gone to the front, but I have been intimately connected with our Vice-President, Lieutenant-Colonel C. H. Mitchell, who has received so many honours—he, I believe, occupies a high military position at the present time never before occupied by a non-professional soldier. There are many splendid records of corporations, clubs and other bodies in Canada, but there are none, I fancy, relatively finer than that of the Alpine Club.

When we write without personal experience about things which others have seen or done, our comments

are apt to smell of the lamp. Like most Britons, I have enjoyed a visit to the one locality in which nature, aided somewhat by man, has arranged a beautiful series of mountains on a scale suitable to man's vision and man's legs: I mean, of course, the Lake Country of England. I have crossed the Alps on my way to and from Italy; I have viewed the vast cordilleran area of North America from transcontinental trains; I have seen many mountains in Mexico in a similarly comfortable manner, and I once climbed the slope of Mount Stephen as far as the Cambrian Trilobite beds; but of the more intimate beauty of mountains, I deeply regret that I know nearly nothing, and of the glorious exultation of seeing the world from great windy heights I know only the more timid delights that may be attained on mountains not many thousand feet high. What can I say, therefore, that does not smell of the lamp, writing in midwinter before a comfortable fire, with books and boxes of prints around me? I fear—nothing.

In that dramatic period in the early history of the earth when the cooling of its crust had gone far enough to establish the lithosphere and the corresponding hydrosphere, the elements were already fiercely at work tearing down the high parts of the lithosphere and carrying it by stream and river to the slopes and valleys below the hydrosphere. It is, therefore, not strange that these first mountains are now rarely found as high peaks and that they who live in those areas of the earth's surface that are the most ancient usually have to be content with very moderate altitudes although they are often blessed with the most lovely scenery. At later periods, however, throughout the whole geologic column, the throes of the tired earth have caused gigantic ranges of mountains to be formed, and so it follows that we may have mountains in Western Canada with rocks as old as, or older than, the Cambrian, two or three miles in thickness formed by thousands of feet of sediment without

any vestige of life, being at a horizon below the point where organic remains begin to appear and in another range of mountains, just alongside, we may find only Carboniferous and Devonian rocks, and they, by the curious manner in which the mountains were created, may have been pushed partly on top of the much later Cretaceous of the plains. The last stage of this mountain building is, however, so remote, so far as man is concerned, and the destruction by the elements is so slow, that the mountain, wherever it may be, is our most tremendous phenomenon, our hoariest monument of time, the object sometimes of our worship, sometimes of our fear, always of our admiration, while its counterpart, the abysmal valleys under the ocean, covered with the slime formed from the wastage of the mountains and carried down by the rivers, creates in us little but horror, and a terror-bound sense of mystery.

As a rule, man in his early stages feared and avoided the mountains and where he has found a more or less permanent home among them his ancestors have been driven to live there because of more powerful enemies who have seized the valleys or the plains. Such mountain men are often degenerate, antique in habit, and profoundly different from the ordinary man. True, in time, the valley man sometimes grows fat and lazy and the mountain man, like Kintoki, sometimes acquires all the strength that comes from contact with nature, and her wild beasts, and so many a hill-man coming down upon the vale of Cashmir, upon the fishing Indians of our Pacific coast or upon the lowland Scotchman, has in effect sung the War-Song of Dinas Vawr—

> "The mountain sheep are sweeter,
> But the valley sheep are fatter;
> We, therefore, deemed it meeter,
> To carry off the latter."

We should be wrong to suppose, however, that men dwelling in the mountain areas have necessarily been

driven there by other men. Sometimes they have, like the plants and lower animals, sought the higher ranges to escape the heat of the plains, sometimes they are the survivors of races that, having always been accustomed to cool or cold climates, cannot exist at the warm levels.

I recall the description of a Canadian missionary who lives in Thibet, the most elevated country in the world, where the valleys are from 12,000 to 17,000 feet above the sea, the passes 16,000 to 19,000 feet and the peaks 20,000 to 25,000 feet. The people whose condition he is seeking to improve, sleep in tents, own no land, dress in skins, have no written language, no form of money, no furniture, are pure nomads, and apparently exist only for the sake of their herds of yaks, the only kind of wealth they care about or understand. These nomads are not very different in the scale of civilization from a certain inhabitant of our country in the scale of biology. On the talus of Sulphur Mountain, Banff, under a stone at an altitude of 6,500 feet, a wingless insect was recently found which is so generalized in structure that it combines the characters of the cockroach, the earwig, the white ant, the cricket and the grasshopper (Grylloblatta campodei-formis Walker).* Like the Thibetan nomad in the "Icy Land" this ancient form of Canadian life, with no near relatives in the ordinary fauna of the world, has survived with little modification in structure since palaeozoic times because its ancestors became adapted to conditions where little competition with other species existed.

To many of us the mountains are associated with loneliness, with that solitude which excludes the world and brings us face to face with our own souls. The great scale of our glaciers, the terribly destructive force of heat and cold and all the other enemies of mountains. the starved life and the vast areas where there seems to

*"Grylloblatta campodei-formis Walker" was discovered by Mr. E. M. Walker, Sir Edmund's son, who is an entomologist of very advanced knowledge. A description was published in the "Canadian Entomologist," Vol. 46, No. 3, March 1914, pp. 93-99.—Editor.

be no life, and finally the enormous number and size of our mountains, make us forget that every mountain is, more or less, an island of the Arctic left in the glacial period and is thus sometimes a refuge for fragile things such as the White Mountain butterfly, which flutters among the rocks close to the ground, and when it settles leans over on one side as if to avoid the wind.

Man in Canada and in the greater part of the United States has shunned the mountains. To him their grandeur and their solitude are associated with the trials of those who first ventured to cross the few passes that were practicable in pre-railroad days. The glimpse of the mountains by Verendrye, the heroism of Mackenzie, the tales of the fur-traders, the discovery of Rogers Pass are remembered by every Canadian, while Americans have their Lewis and Clark, their Pike and others. In Mexico and the southwestern part of the United States, the mountains presented, at all events to the Indian, a different aspect. In Arizona and some neighbouring states man sought safety, as he did in many parts of Asia, by building his home in mountain caves or on mountain shelves backed by cliffs, so that he could keep out the enemy by the simple expedient of hauling up the ladder which constituted his front-door steps. The sufferers on the fever-stricken sea levels of Mexico sought the table-lands for relief and naturally loved the mountains, so that the Aztec turning from the sea to the glorious "Mountain of the Star," which we call Orizaba, could see its perfect cone in the early morning suffused in golden light, or changing with every hour of the day, now crimson, now violet, always present, overpowering, all pervading, and filled with religious awe he prayed to his gods that his spirit might finally rest in the sacred mountain. Ancient Mexicans of all races revered their mountains, built towns at their bases, called them by names significant and often mysterious — not such meaningless names as we often use—and very naturally

worshipped a peak of such surpassing beauty as Orizaba, as the Japanese worship Fujiyama.

The mountain climber, breasting the slope, does not always realize as he notes the rapid changes in flora and fauna that he has been able to pass on a small scale through all the changes which he would find on the level earth by travelling from his temporate or tropical land to the Arctic. Perhaps the best example of this perpendicular range of climate is to be found in Bolivia, where, in the torrid zone, we may meet with every gradation from the tropical heat of the lowlands to the arctic cold of the snow-capped peaks. Here, surrounded by the Andean Cordilleras, of which at least eight peaks are over or about 20,000 feet in height, lies Titicaca, in some respects the most remarkable lake in the world. While it is 12,500 feet above sea level, its maximum depth, 924 feet, is greater than that of any of our great lakes, except Lake Superior. Its area is estimated at from 3,200 to 5,000 square miles, and around this centre of interest there developed a complicated civilization which reached its height before the Aymaras were conquered by the Incas in the thirteenth or fourteenth century. To the Incas the shores of Lake Titicaca became a "holy land" which they regarded as the source of all civilization, and when we compare their skill in weaving, in decorating pottery, in working gold and copper, in sculpture and most noticeably in architecture, with that of the Thibetans, living at about the same height, surrounded by the lore and the art of the most ancient civilization in the Eastern world, and yet remaining mere nomads, little altered in their habits during, perhaps, five or ten thousand years, we can realize the difference between the weak who live in the mountains because their stronger brethren have seized the better *lower* country and the strong who have abandoned the lower and have pushed their way into the better *higher* country.

Let me now turn from my books to my prints and

close this article with a few words about the "Peerless Mountain" which so profoundly influences the poetry, the plastic art and even the religion of those laughing children of the sun, the people of Nippon. They are pleased to believe that at a date equivalent to our 286 B.C. an earthquake by one effort produced the two most beautiful things in the world, Lake Biwa and Fujisan or Fujiyama. As we can readily see these two objects were ever in the mind both of Hokusai and of Hiroshige, and no one can even glance at a collection of objects of Japanese art without seeing that exquisitely simple cone, with its gleaming snow cap, always isolated and remote; and if we look a little more closely we can hardly escape seeing the beautiful lake with the wild geese flying over it, or the sail boats moving on its surface, or the rain, or the moonlight, or avoid fancying that we can hear the bells of the temples sounding across the lake at eventide. Among the countless prints by Hiroshige few are so beautiful as the eight landscapes of Omi, the province in which Lake Biwa is situated. In the earlier work by Hokusai the "Thirty-six Views of Mount Fuji" are the most important. There are as a matter of fact forty-six views in the set, of which I am glad to own twenty-six. From these prints one learns that all there is of life and Nature centres round Fujiyama, or at least that life is in no case complete without the peerless mountain. Elsewhere you may find him at the bottom of a saki cup or a tea bowl, or he may be blessing the handle of a tea-pot, his silver form embedded in the bronze, or he may be a tiny image in gold or silver laid into the steel of some sword, or he may shine through the windows in one of Harunobu's love scenes, but to Hokusai he is the sentinel who watches over every aspect of life. In some of his prints, perhaps, we are close to Fuji, and the red mountain in fine weather towers against a deep blue sky, or a storm is raging and the lightning plays round its base; in another across the sea in the huge waves of

which sailors are fighting for their lives, rises in the distance the type of what endures, looking down at man's transitory struggles; in others every phase of Japanese landscape appears, the work of everyday life is going on—sawyers are cutting up great timbers in the woods, men with their puny arms are measuring the girth of a giant cedar, pilgrims are seeking the mountain or some wayside temple, a cooper is making an irrigation tank, oxen are hauling wood, fishermen are casting a net—it matters not, the silent Fuji is there. Man pursues his varied occupations in the temples, in the teahouses, in the houseboat, in the pagodas, in cherry time—he cannot escape the vigilance of Fuji; he may be humorous, as in the picture we sometimes call "The Puff of Wind"; he may be watching the wild birds flying across the sky, as they so often do in Japanese pictures; he may be occupied in guessing the wonderful age of the famous pine tree—it is all one to Fuji. Even when Hokusai in his most impressionistic vein makes earth hang in the shining air and gives to physical things a dream-like beauty which no Western artist has achieved, Fuji in all his massive solidity cannot be ignored—he is there to warn, he is there to encourage, he is there to proclaim the value of beauty, he is there to guard Japan.

With us Nature has been too generous. Man will settle in our valleys and the mountains will be near them in many ways, but with our scientific spirit and our modern efficiency we shall proceed to tear the heart out of the mystery, our mountains will doubtless be placed most accurately on our maps, will be minutely classified as to their geological constituents and as to all phenomena connected with them, but by that time men will have ceased to look for them as a blessing at the bottom of the wine cup and to sigh to be entombed in one of them as a guarantee of life hereafter.

MOUNTAINEERING SECTION

THE HOWSER AND BUGABOO SPIRES, PURCELL RANGE

By A. H. MacCarthy

FIRST ASCENT OF HOWSER SPIRE

At the head of the Bugaboo Creek, which joins the Columbia at Spillimacheen, Bugaboo Pass carries over into the Howser Creek Valley and to the north of this pass, beyond a long ridge of six peaks, running up in altitude to about 10,000 feet, which suggests the name of Sextet Ridge, is the wonderful outcrop of granite spires spoken of by Doctor T. G. Longstaff in his article "Across the Purcell Range of British Columbia," which appeared in the 1911 Canadian Alpine Journal.

No map of this section has ever been published and it still remains little known, the only available data concerning it being that given in Doctor Longstaff's article wherein it is stated that the highest peak of the group is but 10,244 feet in elevation. This determination was made from the survey work done on this trip by Mr. A. O. Wheeler, and it, therefore, is certain to be accurate, but it has been suggested that from Mr. Wheeler's points of observation he may not have been able to read angles on the highest peak and so obtained the above result with regard to the spire lying to the east of the highest peak. This, however, seems improbable, for opposite page 35 of the 1911 Journal the upper photograph shown is that of the highest peak as seen from its southwest side, and if this is the peak to which Doctor Longstaff refers then all the readings of two aneroids, which heretofore have given very satisfactory

results, must be pulled down about seven hundred feet in every observation recorded below.* This massive spire and its many worthy companions show up very prominently from "Sir Donald" and other high peaks and offer an excellent field for a two weeks' expedition. Even though their altitudes may be somewhat in question, there is no possible doubt concerning the many difficult climbs they afford.

On the afternoon of August 25th, 1916, after a two days' easy trip by pack train from Spillimacheen, our party, consisting of Mrs. George E. Vincent, John Vincent, H. O. Frind, Mrs. MacCarthy and the writer, with Conrad Kain, guide, and two packers, camped at an elevation of 5,000 feet at the head of the north fork of the Bugaboo in the forest about a mile below the foot of the glacier flowing from a vast snowfield, through which the spires bristle on all sides. From the valley below it was possible to see but few of these spires, and speculation was great as to which one, if any, should prove to be the massive fellow that had beckoned to us from every high peak we had climbed in the Purcell Range during previous expeditions.

The field for exploration was great, so we started at five the next morning, determined to locate a spot for a bivouac, to discover our peak and to explore a route to it if nothing more. The first two and a half hours to an elevation of 7,000 feet was the usual work of ploughing through dense undergrowth, crossing and recrossing small streams, and diagonally traversing a much crevassed dry glacier to mossy slopes up a steep face which carried to the level of a glacier-bed above tree line.

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*The altitudes obtained by Mr. Wheeler at the time of his visit to the Bugaboo-Howser country with Dr. Longstaff, in 1910, can only be accepted as approximate. Unfortunately, cloudy, wet weather at the close of the survey, late in September, prevented his making connection with a point definitely established in altitude. On the other hand, altitudes obtained by the readings of a travelling aneroid barometer are subject to the variations of atmospheric pressure and cannot be considered as final.

Howser Peak, so called by Mr. Wheeler, is the one directly on the east side of the Bugaboo-Howser Pass, and is lower than the peak referred to by Mr. MacCarthy as Howser Spire.—Editor.

From here we received our first impressions of the vastness of this granite region and the great number of climbs it offers. To the northwest in a row the three spires referred to by Doctor Longstaff as "The Nunataks," shot out of the glacier, so we designated them from south to north, Numbers 1, 2 and 3; to the west beyond this line several other peaks showed between these three, and several more rose on the east of them. All these spires presented more or less the same appearance and several seemed to be of about the same height, so at Conrad's suggestion we crossed the glacier to the east of the three and ascended to the summit of the saddle between Nos. 2 and 3, which we reached at 9 a.m., the barometer reading 8,650 feet. And now a still grander view lay before us: a broad, more or less circular glacier stretched out and rounded up to rest on the sides of several beautiful spires along its south edge, one of them with its outline capped by an image of a pouter pigeon; at its west side it ran up high on the walls of a lofty ridge that stood in a semi-circle with five sharp peaks vying with each other for leadership, and down in the center of this glacier a long, low ridge showed just above the snow, like a half buried train of cars.

Again, speculation was rife as to which peak was the ruler of this mighty array, and, as we were too close under Nos. 2 and 3 to see their summits, we crossed to the centre of the glacier to get a clear view of all of them to settle this all important question, I devoutly hoping that No. 2 would not be chosen; for, with the sheer cliffs on all sides we had seen, it seemed clearly impossible. The decision lay between No. 3 and the third peak of the circular ridge to the west. Opinion was about equally divided, and we finally decided to try the peak on the ridge, little realizing that Nature had clearly indicated it to be the ruler, for later we found at the west end of the train of cars a perfect profile of the

sphinx gazing intently at its master. This clear-cut image suggests the name of "Sphinx Glacier," as "Howser Glacier," doubtless should designate the glacier on the west side of the mountain that is the source of Howser Creek.

Conrad laid a course along the south side of the glacier towards Pigeon Spire until we reached a line of bare rocks that edges the drop into the deep cut south of the first peak of the ridge; here we rested near a small waterfall while trying to make up for the sweltering effect of a glaring sun on the snowfield, and Conrad examined the mountain side to choose his route. We then worked over and up to a point at the base of the bergschrund below the saddle between the second and third peaks, where we had our first thrill in climbing up the vertical face of the upper lip of the schrund: about ten feet of deep steps in soft snow with hard jabs into it for handholds.

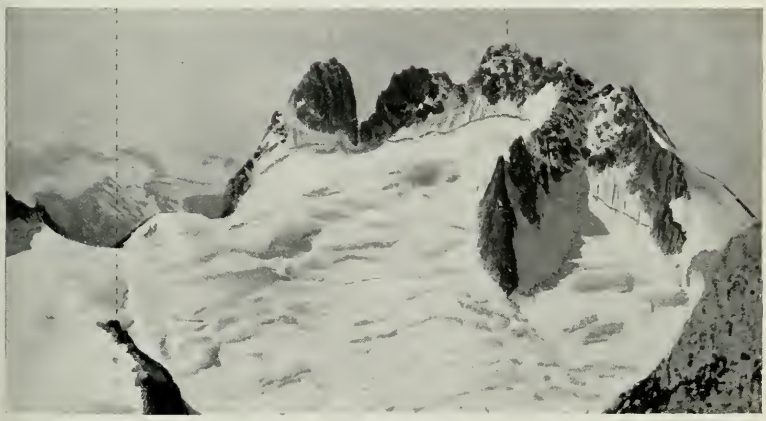
The slope above the bergschrund had but a light coating of snow over the ice and seemed so steep that our estimates ranged from sixty to seventy degrees, but when the clinometer was placed on the stock of an ice axe laid on its surface it showed an angle of but fifty-two degrees which, of course, was a distinct disappointment at the time, but long before we reached the rocks above, at 11 o'clock, all hands conceded that a fifty-two degree slope was sufficient. The first bit of rock work was a six-inch crack between a high, blank wall on the right, and on the left a steep, smooth slab of twenty feet lying at an angle of forty degrees. There were no hand or footholds on either side and it was interesting to note results of the different methods of attack. Taking it in what seemed to be the natural way, with the right leg in the crack and hands on the edge of the slab, one was forced to shin up, twisting the right knee in the crack to hold position for the next pull, and the rucksack jammed the wall and made the pull doubly hard; whereas, by

Howser Group No. 1 Pigeon Spire No. 2 Bugaboo Spire

Photo, A. H. MacCarthy

THE HOWSER AND BUGABOO SPIRES

The Sphinx South Spire Centre Spire



Photo, A. H. MacCarthy

THE HOWSER GROUP
From Bugaboo Spire

tackling it apparently in an awkward way, with the left leg in the crack and sitting on the edge of the slab, the rucksack swung clear above it, and with the right foot placed squarely against the wall, the hands and foot made the boost easy, while the seat on the edge gave a comfortable rest between efforts. No doubt the divergence of opinion with regard to the difficulties experienced on a particular mountain is greatly due to the different climbing methods employed on its various stretches; a little study of mechanical gymnastics often turns a fearsome stretch into an amusing one.

Three steep snow cornices along the sharp edge of ice ridges then came in rapid succession until we landed in a narrow, horizontal crack at the top of a huge slab that had just begun the descent to its final resting place at the bottom of the valley, where all its companions above were ultimately to join it. Those on my rope were fortunate in having this secure stand, while the members on Conrad's rope were forced to stand in narrow ice steps, one foot at a time at the beginning of a mighty ice couloir that seemed to run almost straight up and down, while he cut steps diagonally across it to gain the base of the ridge above. Probably the thoughts which came to one member of the party while thus poised on one leg, with the other dangling over green ice, contributed their part to a declaration made later on the summit about a mountaineer never knowing when to quit.

A rapid climb up the ridge landed us at 2.15 in the cut between the second and third peaks; it could hardly be called a saddle for it dropped off sharply on the other side, affording us little room for comfort while resting and eating our luncheon. The barometer showed an elevation of 10,450 feet and, levelling back at No. 3 peak, we saw that already we were above the level of its summit; our guess had proven correct, we were making for the highest peak of the group. The formation

on opposite sides of this mountain was in marked contrast; the whole east face, although very steep, was much broken from summit to glacier, while on the west side it dropped in one sheer cliff for several thousand feet to a small, nearly flat glacier at its base, presenting a face that would defy any sort of an attack. While at luncheon we were amused at the frank curiosity of a small mountain squirrel which ran about on the rocks chattering at us in a most friendly manner, finally coming within a few feet to enjoy its noonday meal of lichen, thus showing it did not believe man's treachery would carry to such heights. It certainly could not have had a permanent home so high above earth and vegetation, and this day must also have been on a tour of exploration.

At three o'clock we began working up the arête, frequently being forced to divert to the east face to avoid smooth boulder sides, and at 10,750 feet our only apparent course carried us through a very small window back of a huge boulder that capped a short rib below. Besides being a tight squeeze for a man and rucksack it had no sill on the opposite side, the footing being a narrow slab edge along the mountain side at right angles to the window, an arrangement that did not commend itself to us as being good architecture. From this point up, there was a series of broken chimneys and a long stretch over uniform water-washed and pitted slopes to a snow cap and a few dry slabs at the summit, to which Mrs. Vincent led us at 4 p.m., our barometer reading 10,950 feet.

While Conrad built a cairn of the few small rocks that were available, in which to deposit our record, we speculated as to the best route down and discussed the possibilities offered by the other spires; and when Mrs. MacCarthy suggested that No. 3 looked very inviting and we should attempt it, we were astonished to hear the most enthusiastic member of the party say, if she got down from this peak alive, Howser Spire certainly would

be a memorable peak for her, as it was the last mountain she would ever climb. How one's point of view changes with a change of surroundings, the real psychology of the mountains! This very positive soul, two days later, spent fifteen hours in a traverse over all the summits of the Sextet Range and on the way to camp climbed twenty-five feet down into a fearsome crevasse in order to cross it, and never once lost her cheerful smile.

At 4.50, true to habit, Conrad turned his back on our route up and led the way northward along the ridge and down the steep, broken arête and snow patches to the first big gendarme, and then down the east face until, at 10,475 feet, we reached the snow slopes above the bergschrund at 6.40 p.m. Just below our last rock stand the bergschrund was extremely wide and necessitated a horizontal traverse on a 55-degree slope for about two hundred yards to a point below a small water course that had caused a snow slide and left a shute two feet deep to mark its wake. The snow from this slide Conrad figured would so fill the bergschrund that it would afford us a safe passage. The slope was too steep to heel down with safety, so we faced about and backed down, and the 160 toe steps, one member moving at a time with ice axe buried at each step, took a long time to negotiate, but it landed us safely at the upper lip of the schrund where we found a drop of twenty feet to the lip below with a ten-foot gap between it and the rock face partially filled with snow.

In the shute, a few feet above the edge, Conrad drove his ice axe to the head and then passed a double rope over it, letting the two ends run over to the lip below, and, one at a time, the members of the party were lowered from a turn of his own rope around a second axe, each dropping hand over hand on the double rope for security until he landed. It was now up to Conrad; he had intended to jump down, but the distance seemed great and the narrow landing broke sharply down the

névé, and this combination suggested the possibilities of a sprain or a broken leg, so he revised his plan. The ice axes were lowered and he then passed the loop of the double rope over a large mass of snow with his coat tied at the turn to prevent the rope cutting through, and came down hand over hand in safety.

At eight o'clock we were again roped up and set off at high speed for the pass between Nos. 2 and 3, and reached it at 8.45, catching the last rays of the afterglow from a most brilliant, crimson sunset. Our footsteps of the morning across the eastern glacier were easy to follow, and we gained the edge of the high grass plots at about 9.30, just as the sky became streaked with northern lights, the display shifting every few minutes and finally covering the whole heavens with most wonderful shapes and patterns. For a moment the sky would be black, then a bright spot would appear and from it would radiate shafts of light in all directions. These shafts would quiver, contract and then expand until they almost met, then contract and from their common centre quivering rings of light would run out with incredible speed like waves and cross-bar the heavens: suddenly all would be darkness again, only to be broken in a moment when the display would take on still other forms. If the climb of the day was really to be the last for any of us the heavens joined in for an hour with their mightiest display to mark the occasion.

The head of the east lateral moraine was reached at 10.30, and we had easy going along its sharp edge until we struck the bush and tree growth, where, in the darkness, we found great difficulty in securing footing around it. At a point where the face of the moraine drops abruptly on the glacier side, a twig failed to measure up to the demand placed upon it, and Mrs. MacCarthy suddenly disappeared in a cloud of dust; and here again I was impressed with her speed in the mountains, for my quick pursuit was of no avail, she had shot down

Photo, A. H. MacCarthy

SOUTH SPIRE OF HOWSER GROUP
From South-Southwest

Photo, A. H. MacCarthy

PIGEON SPIRE

between two lines of boulders and calmly awaited my arrival forty feet below the ridge, neither of us being even slightly injured, and having in the darkness performed a feat that neither would have essayed in daylight. Replying to Conrad's anxious inquiry, that we really preferred a lower line, it being dangerous to try to ascend such a face, we continued along the edge of the glacier to its forefoot and there waited half an hour for the rest of the party to join us, they having continued along the moraine and having found it very tiresome and difficult.

Our plans as formulated in the morning did not reckon with a night expedition, so no clear trail was blazed from the camp to the glacier, and this oversight caused us many scratches and bruises in our plunges through the dense brush and pines before we reached camp at 1.05 a.m., where Charlie Stewart still kept warm our delicious supper, that had lost none of its flavor by the delay in serving.

FIRST ASCENT OF No. 3 PEAK, OR "BUGABOO SPIRE"

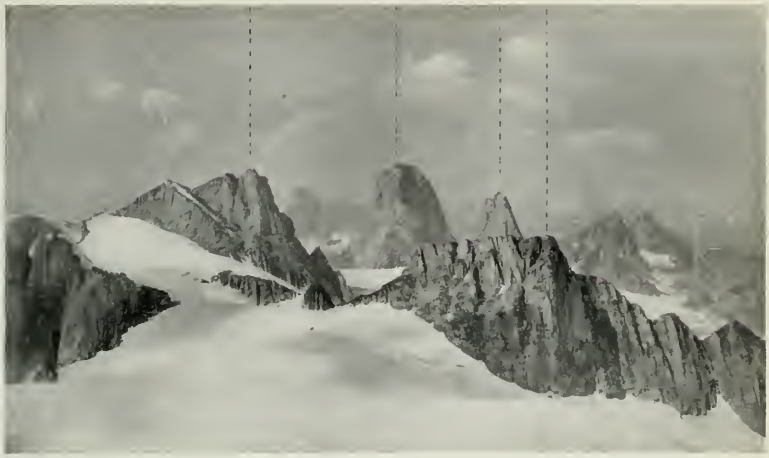
On August 29th, the day after our traverse of the Sextet Ridge, Mrs. MacCarthy, John Vincent, Conrad and the writer left camp at 4.30 a.m. for a try on No. 3 peak, which we erroneously imagined was the one on which Dr. Hickson, of Montreal, had made an unsuccessful attempt during the latter part of July. Later we learned that, with Edouard Feuz, he had tried the main ridge of spires, ascending the north arête but was driven back on account of snow conditions after reaching the base of the last big gendarme. The weather was not promising, but by the time we reached the saddle between Nos. 2 and 3, the clouds had broken and we were favored with sunshine for most of the day.

Crossing the eastern glacier close along the cliffs of No. 2 peak, they presented a most forbidding aspect, as if trying to scare us from any search for a vulnerable spot that may possibly lie on the southwest side of the

mountain between its main mass and a low lying shoulder.

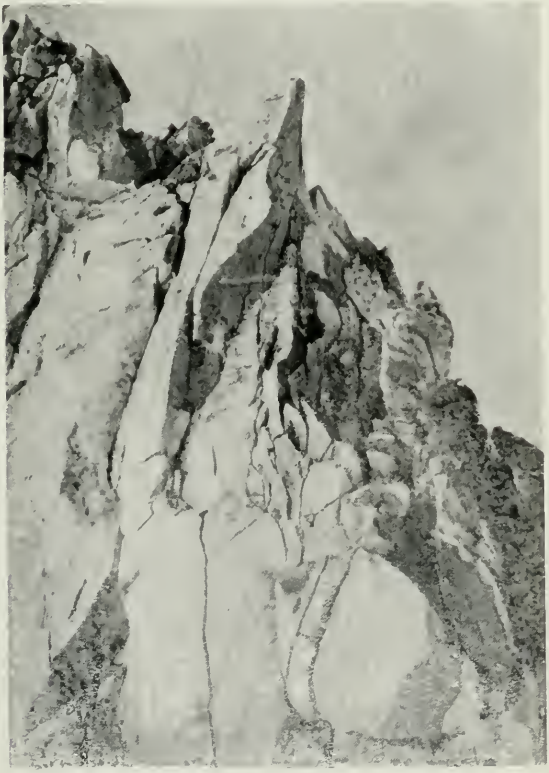
The lower reaches on No. 3 above the saddle, for about 1,200 feet, varied at angles from 30 to 60 degrees, with two thirty-foot chimneys and one smooth slide, the whole stretch affording every possible kind of interesting rock work. Up the easier parts of these stretches Conrad set a fast pace with John trailing close behind him, while Mrs. MacCarthy and I, following close behind her to avoid the necessity of using a rope, took a more leisurely gait.

The *pièce de résistance* that took nearly two hours to negotiate was reached at an elevation of 10,000 feet, and here the laggards again rejoined Conrad and John, who sat below it nonplussed at the sight of a veritable bugaboo, which immediately suggested to our minds the appropriateness of the name "Bugaboo" for this spire. Our route was completely blocked by a most formidable gendarme, whose base completely spanned the width of the ridge. Its wall on the west side ran up in prolongation of the mighty cliffs that rose from the glacier far below, and its top edge rose sharply like a horn to the point where it joined the high sheer east wall. The side to the west was blocked by the cliffs, and on the east side a broken section led down directly below the east wall for about forty feet to a ledge four feet wide that ended with a 2,000-foot drop, while above this ledge, although the face was broken, there seemed to be no safe line of ascent, and Conrad finally decided that the face of the gendarme offered our only hope. Relieving himself of his rucksack, he gradually worked up this face by means of several diagonal cracks until he succeeded in getting both arms over the top edge, and here he stuck for a long time, feeling about and looking for some little thing that might afford him a hold long enough to pull himself over; at last he found it, although it was not apparent to us when we followed, and slowly crept over the edge.



Photo, A. H. MacCarthy

GROUP OF SPIRES, SEEN FROM SOUTHWEST



Photo, A. H. MacCarthy

GENDARME ON BUGABOO SPIRE

Photographed about 500 ft. below

much to our relief, for we supposed the difficulties were ended, but they had really just begun. Half an hour we waited while Conrad's body disappeared and reappeared at the edge; after each disappearance we expected to hear a shout that we could prepare to follow, but each time Conrad's fingers would slowly creep into sight and then he would appear again to survey the situation and make a fresh start. The whole trouble, he explained, was due to the lack of any sort of hold or footing on the steep, smooth face for a distance of six feet to a crack beyond, and as it was impossible to throw the rope over anything to give him support and the ice axe had proven unavailing, he was forced to depend entirely upon himself with no certainty as to what position he might find himself in when once in the crack. It was evident from his persistent efforts that he was determined to make it, and all we could do was to tend the useless rope, giving him slack and pulling it in again when he came back into view. Just how he finally got into the crack is a mystery to us but, after a dozen reappearances, he smiled and said: "I make it," and soon began to call for rope, until about sixty feet had run out and he called from the top of the ridge above the gendarme. We then bent on two spare ropes and with the aid of a double rope went up, one at a time, fully realizing, as we passed over the top stretch and up the broken course above, that the real climb on a mountain is the one made by the guide, who often must take his chances without assistance from any helping hand. We also felt confident that Conrad would not descend over such a stretch if any other possible route could be found.

The distance from here to the first summit was short and ended with a good climb up a right angle corner at the junction of two rough walls, and John led us to the summit at 12.45, the barometer reading 10,250 feet. We levelled across to the other summit, lying a few hundred yards to the northeast, which appeared to be a few feet

higher; so, after having a snack and building a cairn for the record, we started for the second summit, soon to be stopped by the sudden termination of the top mass which had run along on a level for a short distance and then dropped a little until its side cut sharply back for thirty feet or more, thus leaving the ledge pointing out into space over the glacier far below. Twenty feet down, where the receding side again joined the vertical cliffs underneath the overhang, a sloping slab lapped the cliff a few feet; so, with the aid of a double rope passed over a convenient rock, we dropped down to this level, the rope being left for use on the return trip.

Horizontal cracks on the slab carried us to a broken causeway with sections of it only a foot or two wide, which were topped with a rounded edge, making a straddle the only safe method to negotiate them. Three or four sharp rises and a short irregular chimney landed us on the summit at 2.40; forty minutes of work to find the barometer reading exactly the same as on the first peak, 10,250 feet, and the first peak now appearing a little higher than the second one, a trait that nearby peaks seem to have to lure one on.

The trip back to our rucksacks was easily made, each going up the double rope hand over hand to show that he was fit for the return journey, and at 3.20 we started down, all interested to see what was to be done at the gendarme.

Fortunately we had three ropes along, two of eighty feet and one of a hundred and twenty feet; so, after a survey of all sides, a route down the cliffs back of the gendarme was chosen and a double rope was passed over a projecting rock with Conrad's coat underneath to serve as chaffing gear for the loop and for the lowering rope. Half way down the eighty-foot stretch and a little out of line with the hanging rope a small ledge projected from a side wall, which offered a chance for a rest, but, as this and the narrow sloping ledge below were

Photo, A. H. MacCarthy

MRS. MacCARTHY on ROPE GOING FROM FIRST TO SECOND SUMMIT, BUGABOO SPIRE

Photo, Mrs. A. H. MacCarthy

A. H. MacCARTHY, DESCENDING 80 FOOT DROP BEHIND GENDARME ON BUGABOO SPIRE

insignificant edges above a 2,000-foot drop, no one cared to linger on the rope, but came down as quickly as possible, taking a turn of the double rope around a leg and pinching it between the feet to relieve the strain on the single rope. Conrad being the last to come down did not have the aid of a lowering rope and had to depend entirely upon his hands and the turn around the leg; but so long as the rope was kept securely pinched between the boots there was little danger, for a slight pressure on it will hold the weight of the body and relieve the strain on the arms.

The broken section carried us up forty feet to the base of the gendarme with just one hour spent in getting down its forty feet of height, and this gave us ample time to enjoy the many good short stretches that had annoyed us with delays during the morning. We also deflected from our route to try a short cut to the glacier, but were driven back by an unbroken row of cliffs that rise along the east side. Camp was reached at 8 p.m., and the next day we reluctantly turned our backs on the many spires whose intimate acquaintance we had not made, but with a resolve to return to them at the first good opportunity.

THE CARIBOO MOUNTAINS

By E. W. D. Holway

"From many of the Rockies further south I had seen the Selkirk range, but they are not, in my opinion, at all equal to the Cariboo group. Up to the present, as far as I know, not a white man has ever penetrated into its fastnesses. I have heard stories of how even the most adventurous of prospectors have been turned back. Any one who has attempted to reach the high mountains on the west of the watershed, either in the Selkirks along the Columbia River or in the Rockies, knows that he will never try again."—J. Norman Collie, Alpine Jour. 26: 8-9, 1912.

When I read this I immediately decided to have a look at them. Some years' experience in carrying a pack in the Selkirks had shown me that nothing there was impassable if one was sufficiently interested to make the hard work a pleasure.

In the summer of 1916, after a delightful, although a rainy trip up Swiftcurrent River, the ascent of Mt. Longstaff and of other peaks and passes, completing the previous season's work in that region, Dr. Gilmour and I decided to see the Cariboos. For the first time we had had fine views of them and were able to locate high peaks and great glaciers at the head af Sand Creek, which flows into the Fraser near Tête Jaune. We selected this valley for the further reason that, owing to the mica mines on Mica Mt., there was a horse trail for six miles. There was also said to be a trapper's trail for a few miles further.

Buying our provisions at Jasper, we took the morning train to Tête Jaune, where we were met by a man engaged to help us pack. The horses were to have been ready also, but high water had taken out the bridge and they were on the wrong side of the river. A half day's work failed to get them over, but luckily we discovered that there were two others, and at 3 p.m. we were on the trail. Just at dark we came down to the creek, which

was as far as the horses could go. There was barely room for us under a high overhanging cliff, the river roaring by like a great fall with constant booming of boulders. We arose early and hung up by a wire out of reach of bears and porcupines all that we could not get into our packs.

Our camp was 3,400 feet, 1,000 feet above the railway, but beyond as far as we could see it appeared to be nearly level, and we found the tongue of the great glacier, eight miles further, in the end of the valley, to be only 4,200 feet.

The going the first day was fairly good as some alders had been cut and we made five miles. The second day at 4 p.m. we located a camping place a few feet above an old stream bed, near the tongue of the glacier, having worked hard to make three miles. It was fortunate for us that it was elevated a little, for one night I heard water running below the tent and we found in the morning that a great stream had broken out at the side of the glacier some way above the tongue and that all the old channels were full. After about thirty-six hours it ceased. Evidently a lake beneath the ice suddenly found an outlet.

The valley is very sharply V-shaped, and looking back from the tongue of the glacier, Mt. Robson just filled the opening. This was often a glorious sight at sunset. One evening a great hat-like cloud, in all delicate colors, covered the summit, while just below there was a broad band of red with perfectly parallel edges. Higher up we could see all the Robson region.

Our first task was to see if a high camp could be found, but glaciers, cliffs and steep slopes everywhere rendered it impossible, and this is the case in the valleys both east and west. It is a far more difficult country to get about in than the Selkirks. Such passes as exist are very high and hard to carry packs over.

Three miles below camp on the east is a fine waterfall coming from a hanging valley leading up to two black peaks with glaciers below the summits. Two miles further down a glacier descends to the valley level. At the head of the valley are several great peaks, 10,500 to 11,000 feet or more, with glaciers everywhere and a wonderful cirque, the back wall of which is very high and too steep to retain any snow.

On a day of rain, snow and mist, we explored the big glacier. For three miles the ascent is gradual, although the ice is much crevassed. Then came a splendid ice-fall, one of the most beautiful I have seen, and a wonderful névé many miles wide. We reached the col at 9,400 feet and ascended a peak of 9,800 feet and looked into a branch of Mica Creek, the most magnificent valley that I have ever seen. Great glaciers and high peaks at the head and glaciers everywhere on the sides as far as I could see, all uniting in a valley glacier of unknown length. Mists were so thick that only momentary views were possible. The glacier that we had come up was about six miles long, with many side glaciers feeding it.

One lovely day while the doctor remained in camp I repeated this trip alone, obtained photographs and discovered a way down, very difficult with packs, but possible.

The next day I again explored alone, ascending the glacier for two miles, climbing above the ice-fall of the side glacier and following this up the fine second fall to the pretty cirque high above. The walls of this could be climbed, but a great avalanche of ice from the mountain above came down just then and went far out on the névé so that I went up the mountain on the west, descended by very steep cliffs and found a pass further west that led into a great cirque now only partially filled by the decadent glacier.

The next day I came again to this pass with the doctor and we went down into the cirque and out on the south

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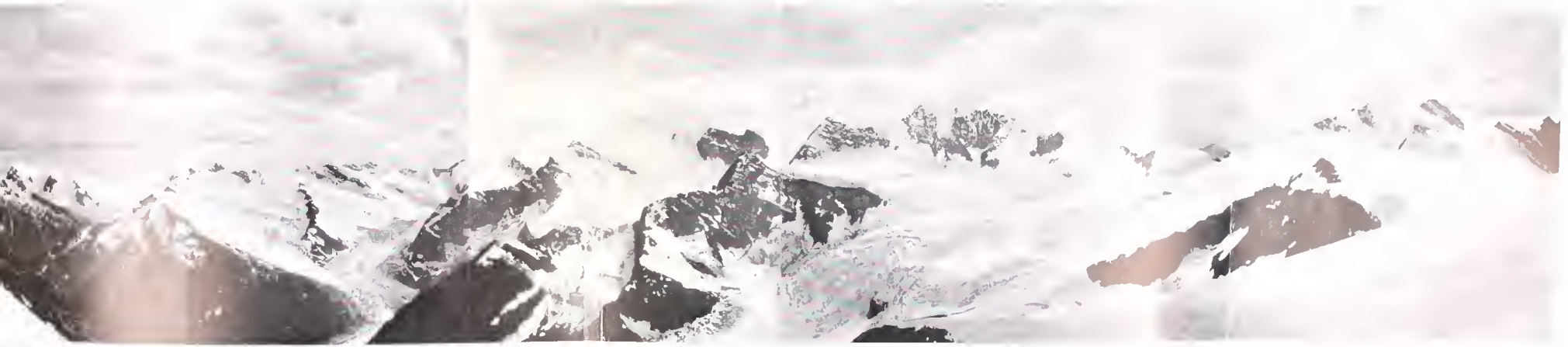


W. H. [illegible] East Side Mountain, No. VIII. [illegible] Valley

THE CARIBOO MOUNTAINS

FOLDOUT BLANK

wall where we looked down on the Little Shuswap (Kiwa) glacier apparently coming from the northwest face of the highest peak at the head of Sand Creek and going out of sight in the valley bottom. We could not see far towards the head of the valley, but it must be magnificent. From the pass we saw part of the northwest face of this peak, all ice covered.

While seated at the top of the cirque we saw a porcupine coming up the very steep snow beneath us. He heard our talking and carefully raised himself a little and looked at us. He evidently disliked our appearance for he turned head down the slope, but slipped, so he faced up again and very carefully kicked steps with his hind feet all the way down, making several kicks to a step, just as a climber would do in such a place.

We saw from the Mt. Robson region other great peaks and glaciers further west, but the rivers flowing from them into the Fraser are longer and the difficulty of reaching them from the side of the railway greater. We saw nothing, however, to prevent experienced parties in exploring all the range. It is not a short trip affair. It is useless to attempt it unless one has the entire season.

The climbing is a fine combination of interesting glacier work and narrow rock arêtes, which are quite likely to be icy and covered with fresh snow. Owing to the low camps the trips are all very long and one must sit out some nights on the rocks. The weather at our camp was good, but stormy most of the time on the peaks,.with much drifting new snow. As usual, as soon as provisions became short it cleared up. Our time was thus necessarily, and, perhaps, as profitably spent in exploring passes and routes for next year's work.

The names in this region have not yet been passed upon by the Geographic Board.

TWO CLIMBS IN THE TORNGATS

By A. P. Coleman

In spite of gales and floating ice, the Gerfalcon had winged her way for 900 miles from Newfoundland to the Torngats in northern Labrador, and now we anchored at the Schooner Cove in Nakvak Fiord. The little 17-foot punt was hoisted out and Alf and Uncle Lige, my two fishermen, loaded her with supplies and put up the tiny brown sail, and we were off for the end of the fiord thirty miles away. It was a sheltered waterway only a mile and a half wide and walled in by mountains, yet we were halted twice by storms too fierce to pull against. The last delay, in a little harbor with a sandbeach, I did not much regret, since our camp ground was at an old Eskimo village, in summer vacant, in winter tenanted by just two families at present. We had met them at the Schooner Cove huddled in two small tents made of blankets.

These winter residences are not aspiring. They are really burrows in the sandy soil; each with a dormer window, glazed with seal intestine, projecting above the turf, and the odors savor so pungently of the seal blubber burned in the soapstone lamps lying on the floor that my visit did not last long. The village, without a bush in sight and with huge whitening bones of the whale, the walrus and the seal littered about, was as unlike an Indian camp ground in the Rockies as one could imagine; for here everything was adjusted to the kayak, the monsters of the sea and a nine months winter, instead of the pony and the bighorn and the summer sun of Alberta.

Nakvak Fiord is the most wonderful inlet of the sea on the eastern shore of America and reaches a climax at the very end, where cliffs of ruddy gneiss rise 3,000 feet or in one place even 4,000 feet above the tide. Here on the

bare gravel of the river delta, under the shadow of the cliffs, we hoisted the old silk tent in so furious a Chinook that a guy had to be fastened to westward to keep it from blowing away. Now for a walk up the valley to spy out the land and have a look at the mountains!

A long mile over loose stones brought me to a mountain-walled lake, even grimmer than Devil's Lake near Banff. By the way, why did they change that eminently fitting name for the sugary and inappropriate Minnewanka?

To the south of the lake opened a rough and steep valley with a snowy mountain in the distance and, nearer by, a daring pinnacle of brown rock about 4,000 feet high with a cloud banner streaming from its summit in the west wind. After two fordings of the wild creek in the canyon at the foot of the peak and much rocky scrambling, no way of scaling the walls of the valley presented itself and I went back to camp. Some of our adventurous younger men with a proper love for chimneys and gendarmes may perhaps climb this miniature Matterhorn in some later summer.

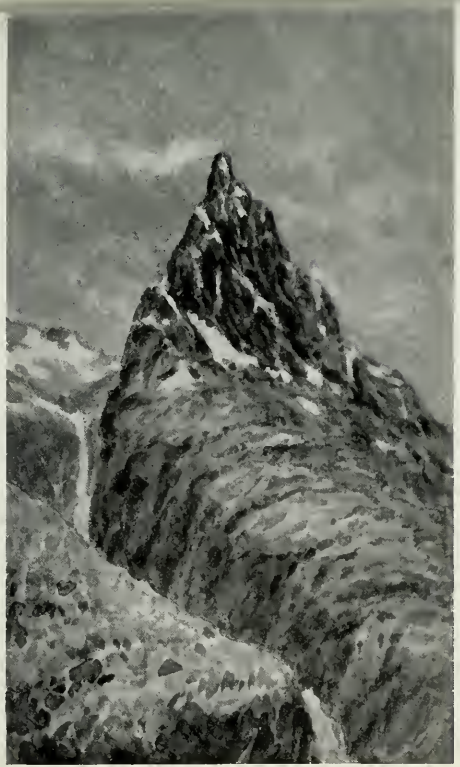
At the tent I found that the question of firewood was agitating Alf, who looked after our meagre cooking; so we had a strenuous pull in the boat across the powerful current of the river to reach a forest on the sunny northern side of the valley. Here willows and alders aspired to heights of six or even eight feet, the rankest growth of timber in the region, and we presently gathered all the dead wood needed. Next day our woodpile served us well when fog and rain drove in from the east, bringing the chill breath of the Arctic current.

On the third day the sun shone fitfully and, for a wonder, the fiord was unruffled so that the walls of rock were doubled by reflection. The punt was drawn in from its anchorage and we embarked and rowed two or three miles back to a valley promising an easier climb than the mountain walls round our camp ground.

The valley, with its stony floor carpeted with trailing bushes or wild flowers, reminded one of the slopes of the Rockies above timberline, and the beds of white heather (*Cassiope tetragona*) and bunches of moss pink (*Silene acaulis*) seemed quite homelike to an old tramper of the western mountains. At 900 feet, where the last dead twigs made the boiling of a kettle possible, we made tea and had a second breakfast. The Newfoundland fisherman is as dependent on his cup of tea as an Australian bushman or an English society lady, and he wants it well boiled.

Then came steeper slopes of rough loose stones and sometimes a bit of cliff, and the plants dwindled to brown moss and the reindeer lichen. At 3,000 feet a cirque with a lake and some snowbanks, a thousand feet below, suddenly yawned before us and we zig-zagged southwards to get an easier grade. At 3,500 feet the rockwork became difficult, though not dangerous since it was good solid gneiss, and my two fishermen began to lag and to enquire whether "us ought to go any farder." However, they were encouraged and went on and when a final cliff of shattered gneiss was mastered, at about 4,000 feet, we stood triumphantly on the summit expecting to look over towards the wild valley I had seen two days before. Instead, we found a gently rolling surface sinking westwards for a quarter of a mile and then rising as a slope of snow endlessly into the sky. Snow in August seemed ominous and fearsome to my men, but the mountain rim beyond was irresistible to me and when I started on, as decent fellows, they followed. At the foot of the snow-slope was one of those intense blue little lakes, still half frozen, that you remember on some of your climbs, and just to the south a brook leaped into space.

The snow-slope was just right, as good as a sidewalk, lying at an average angle of only thirty degrees, and a mile of steady trudging, partly under dazzling sunshine



Photo, A. P. Coleman

PEAK NEAR HEAD OF NAKVAK FIORD

Photo, A. P. Coleman

LOOKING INTO VALLEY FROM TOP OF MT. SILENE

and partly under cloud shadows, brought us to the edge, where gray gneiss once more stood above the snow and a deep valley opened before us. This was the final summit of Mt. Silene, as I have named it from the pretty flower blooming high up on its flanks. The aneroids made it just 5,000 feet above the fiord, of which we could only catch glimpses because of a lower swell to the north.

The clouds had gathered and the ridge was chilly, so, after the men had built an inartistic cairn and I had shiveringly made some topographic sketches, we partly ran and partly glissaded down the snow-slope and then toiled up the loose stones of the northern swell of the mountain. This broke off quite as suddenly and threateningly as the main summit, and at my feet, but not at my men's feet, for they kept carefully away from the edge, opened one of the grandest views in eastern America.

The little tent could be seen away beneath, like a white boulder beside the silky blue-green river, and beyond to the west was a long, narrow lake with walls three thousand feet high and a roof of clouds. To the east stretched the blue fiord, its whole thirty miles distinct, partly in sun and partly in shade, and beyond its grand portals was the shimmering sea with a stately procession of icebergs slowly marching southwards. Inland rose higher mountains, mostly dome-like and partly snow-covered, a region not visited even by the Eskimo except in some of the wider valleys, the dwelling of the bad spirits from which the name Torngat comes. Clouds brooded over the unknown interior, with here and there an opening for shafts of sunshine to light up a snowfield or a bit of cliff among the blue and gray mountain masses. It was a fascinating scene and I hated to turn back, but it was now five o'clock and the ochre-colored cliff across the fiord a mile away was getting into shadow. Besides, we were desperately hungry and dry ship's biscuit could not be eaten without a drink.

Turning back over the rolling, stony plain, it was hard

to believe that cliffs cut off the square mile of mountain top to north and west and south.

Mt. Silene is simply a fragment of tableland isolated by the carving of profound valleys on all sides by glaciers during the Ice Age.

We made what speed we could to the eastern edge where we had come up, took a short cut along bad cliffs and slopes of sliding rocks beside the cirque, thereby losing time and temper, got a glorious drink and munched biscuits when we reached the creek, stumbled over sharp-cornered stones on the last slope, and at half past seven reached the sea pretty well done out, since fifteen days on the crowded Gerfalcon had not put us in training. And then came a bad fright. What had become of the boat? We had left it moored to a rock with an anchor out astern, but no punt could be seen bobbing on the waves. Visions of three famished men toiling thirty miles over the mountains with nothing to eat and then firing guns to bring a rescuing motor boat from one of the schooners passed before our minds, but at length we found the punt high and dry behind a great rock. All that had happened was that the tide had gone out.

With much tugging, the boat was got into the water and half an hour later in the dusk a fire was blazing beside the tent and we were gorging on Australian rabbit, biscuit and jam while the tea was getting boiled, and my men were boasting in a dialect half Irish and half Devonshire of their daring deeds as mountain climbers. They were by no means as modest or reticent as my two Eskimos, Cornelius and Johannes, the summer before.

A few weeks later, after various tramps and adventures in valleys or on mountains, one of 5,200 feet, we returned to the Schooner Cove, took on board the remainder of our supplies from the Gerfalcon and left Nakvak Fiord, turning the prow of the punt southward into the open sea. For some hours we rowed or sailed past the roaring foot of splendid cliffs, ascending and descending the long

Atlantic swells, and then, rounding Gulch Cape, slipped into the sheltered waters again. Here we shot a small walrus, innocently basking in the sun on a sloping rock and took its skin to be dressed by an Eskimo lady at the deserted Moravian mission of Ramah on Nullataktok Bay. The patriarch of the little community spoke a few words of English and explained that our victim was a "pickaninny woman walrus."

At the end of the fiord, for a day or two, there were minor scrambles to select the best routes, work done by Alf and myself, since "rheumatics" and other ailments kept Uncle Lige a prisoner, limiting his activities to shooting ducks on a nearby pond and having supper ready when we came home late and hungry.

A start was made for the mountain chosen, but we were driven back by rain, and then came a Sunday, fine but useless where pious Newfoundlanders are concerned. It began to look as if I should have to turn homewards with no more climbing, for it was near the end of August, and September storms do not promise good navigation for punts on the Labrador coast.

Monday, August 28th, was the last day possible, and it dawned threateningly with steel gray clouds and a streak of savage red over the sea, but Alf and I started briskly up the valley for our last climb, crushing under foot the low-growing blueberries and cranberries. Four miles up we left the main river to follow a torrent coming in from the north and tumbling over ledges of gneiss for a thousand feet. Beyond this was the usual deep valley, floored with huge blocks and enclosing a lake. Here a heavy shower sent us to shelter under a twenty-foot mass of gneiss, but was soon over. Then came a stiff scramble up a cliff, close to the torrent and slippery with moisture, to the rim of the next basin, 2,600 feet above sea, a typical cirque, verdureless with a dark lake hemmed in by snowbanks and big gneiss boulders rolled from the walls around.

It seemed possible to get up beside the waterfall to the next step in the gigantic stairway, but the walls beyond seemed even more hopeless than those around us. A backward look from the head of the lake showed a dip in the wall toward the southwest and we painfully made our way over almost unmanageable talus masses to the foot of a rock couloir, where we took a second breakfast beside a trickle of water from a snowbank.

A heartbreaking climb over stones that slid downwards almost as fast as we went up brought us to the col, at 4,000 feet, and we found ourselves once more on a fragment of the ancient tableland with firm ground beneath our feet. Northwards the mountain rose steadily with a sweep of snow against the sky that might be a mile or five miles away for lack of anything to compare with. A half mile brought us up standing at the edge of a chasm gnawed into the mountain from a valley to the west, and here we swerved eastwards. Much of the slope was wonderfully paved with angular blocks of all sizes wedged firmly together. Then came the snowfield, partly new and white, partly delicate blue-gray and made of ice-grains the size of hazel nuts, evidently permanent, for this was the 28th of August at the end of the hottest summer on record among the fishermen. It was impossible to judge on this elusive surface under a pale, gray sky out of which a flurry of snow came at times.

The snowfield ended and we walked on firmly wedged rocks again, always ascending, until, without warning, an abyss opened before us and I looked down upon a glacier, a stream and two richly colored lakes in a setting of dark gneiss. Beyond them, hardly a mile away, rose the grand cliffs and daring knife-edged ridge of Mt. Cladonia which I had climbed with Cornelius a year before.

The highest point proved to be a dome of snow, 5,520 feet above the sea by the best aneroid and thirty feet less by the other, and one could look over Mt. Cladonia, 500

Photo, A. P. Coleman

THE SNOWFIELD, MT. SILENE

Photo, A. P. Coleman

TOP OF MT. SILENE WITH HIGH SUMMIT BEYOND THE VALLEY

feet lower, and catch glimpses of Nakvak Fiord. A few summits to the west rose to our height and perhaps a little more, but none seemed to reach 6,000 feet.

With the nearest stones I built a modest "stone man," since Alf had sprained his right arm on his way up to the col and could not perform his usual duty.

We had reached the climax but walked east along the cliff edge to look down on another small glacier in a steep walled cirque before turning back. From Mt Cladonia I had seen still a third glacier in a third cirque the summer before, so that the name Cirque Mountain may be appropriately given to our highest summit.

It was after five and there were ten strenuous miles of travel as well as three ticklish descents before we could reach home, so we set out on the run down the snowfields, taking a little more care on the stony slopes, until the col was reached. From this to the lake, 1,400 feet below, was over the big and little rocks of the couloir, most of them ready to roll when touched with the foot, and meant a slow and painful grind, particularly for Alf with his almost useless right arm; so we halted and ate the residue of our lunch at the outlet where the waters were launched over the precipice into the next valley. The cliff and the talus below had to be taken circumspectly and the same was true for the last plunge of 1,000 feet from the hanging valley down to the main valley. It was dusk when the descent was finished and we had to wallow through bushes breast high for half a mile along the edge of the torrent before reaching the dry benches and swampy intervals along the main river. Meanwhile we could hear the minute guns fired by Uncle Lige to hasten us home. It grew dark and a shower soaked us to the skin before we jumped the final creek, paused at the camp fire and stooped to enter the little tent. The duck was stewed all to pieces and the tea boiled black; but by candle-light we filled the void satisfactorily and then lost no time in getting into our sleeping bags.

The summer of 1916 had gone fairly well in spite of rains and gales and unenterprising assistants. Three points over 5,000 feet had been climbed, while the highest ascended the year before had just touched that level. Some hundreds of square miles of unknown mountains had been roughly mapped and a few small glaciers had been added to those found in 1915, and now the summer was over.

Next morning the punt was loaded early so as to get off with the tide and a few hours later we turned "up south" over the big Atlantic swells with the roar of the surf in our ears along the foot of the gray cliffs.

CLIMBS AND EXPLORATIONS IN THE PURCELL RANGE IN 1916

By W. E. Stone

(Second article)*

The last days of July, 1916, found us busy in preparation for another campaign in the Purcells. As on the previous year, the rendezvous was at Karmax Ranch and the leading spirits the indefatigable MacCarthys. The field of effort was to be on Toby Creek and its northern branches; the purpose to connect up with the headwaters of Horse Thief Creek and its southern branches, as well as to reach some entirely new country to the westward. Toby Creek is one of the largest tributaries of the Upper Columbia River, having its source in the Toby Glacier near Wells Pass, some thirty or forty miles southwesterly from Lake Windermere and midway between the Columbia River and the Kootenay Lakes. Between and Horse Thief Creek on the north lie some of the highest altitudes of the Purcell Range, while further to the west, between the headwaters of Hamill and Glacier Creeks, is found an equally interesting and wholly unexplored alpine region.

An old Indian trail followed the course of Toby Creek long before the white man's advent, and this route still constitutes the only practicable crossing of the divide for a distance of nearly one hundred and fifty miles between the main line of the C.P.R. on the north and the Crowsnest branch on the south. For some miles west of the Columbia Valley this trail has been converted into a wagon road for the accommodation of various mining and lumbering enterprises; but the unusual spring floods of 1916 had done such havoc with bridges and roadbed that this route had become impassable for anything less

*See previous article The Canadian Alpine Journal, 1916, p. 12; also Appalachia, Dec., 1916, p. 19.

mobile than pack ponies, and more than once during our progress we were forced to abandon the main trail and seek the old Indian route skirting the higher benches of the valley on the north side.

On the morning of Friday, July 28th, low hanging clouds hid the grey walls of the Rocky Mountain ranges to the east of the Columbia Valley, a weather portent none too assuring, but our brave cavalcade of ponies and the two farm wagons which were to give us a kindly "lift," set forth and for more than three weeks the skies were hidden by nothing worse than passing squalls. The expedition was provisioned for twelve days but the lure of unexplored valleys and virgin peaks proved stronger than any other consideration, and our stay was prolonged for twice that time, thanks to an unimpaired line of commissary communication with the supply base. We soon left behind the delectable gardens of the ranch and the few scattered cottages at the mouth of the valley. Across Lake Lillian the distant view of Nelson's bold peak gave us an anticipatory thrill. Just beyond Jack Pine, in place of the expected bridge, was a desperate gap of rushing water and far strewn boulders. The wagons which had accompanied us thus far, were now abandoned and with them disappeared the last trace of civilized ease and comfort. Packs were shouldered and, following the reluctant cayuses, we moved steadily on over occasional stretches of good trai alternating with jungles of brush and fallen timber Plodding along at the rear of the column, we discovered one of the ponies foundered in a hidden gully in a dens thicket of alders. Lying on his back with all four feet i the air and four plump and precious dunnage bags for mattress, he unconcernedly browsed upon such vegeta tion as could be reached from his somewhat restricte position, looking the embodiment of resignation an repose. What mattered for him the long trail or th burden of the day in the discovery of the real use of hi

pack! He might be soldiering there to this day but for the recall of Bill, who, with a few meaningful words, destroyed his illusions and set him again in motion.

Camp No. 1 was pitched that evening at a division of the trail near the junction of the North Fork with the main stream of Toby Creek. On the following morning, having cached a portion of our supplies for the return, we took the trail up the valley of the North Fork and by noon had reached its terminus and established Camp No. 2 near a mine, where we remained four days amid the most picturesque surroundings. The head of the valley is entirely enclosed on three sides by altitudes ranging from eight to ten thousand feet. On the west a bold ridge, broken into four toothed peaks, was flanked by a considerable glacier. On the east high grassy slopes gave excellent pasturage to the ponies. Flowers and birds were unusually abundant in this sheltered situation, and we were particularly entertained by a family of loquacious wrens who never ceased to discuss their strange visitors during the daylight hours. A fine waterfall came tumbling over the terrace at the northeast and, breaking into a foaming cascade, filled the amphitheatre with the ever-welcome music of dancing waters. The range of rocky peaks to the west immediately attracted our attention, promising not only some interesting climbing, but from their commanding position seeming likely to afford a comprehensive view of the region to the west.

Early the following day, the 30th, we set out at 5.30 a.m., following an indistinct trail up the northeast side of the valley past the falls, crossing the stream on a snow-bridge among scattered larches, swinging around across a high terrace with snowbanks toward the west and up to the top of the first and lesser of the four outstanding peaks of the range, reaching the summit at 9 o'clock. As we came into full view of the surrounding country, we were delighted to find close at hand to the

northwest the Jumbo and Commander ranges and, for the first time, we saw the south face of Jumbo, a tremendous cliff of bare rock overhung by a beautiful snow-cornice. To the northeast Peacock, Spearhead and the Delphine Ridge brought vividly to mind the strenuous day spent on their pinnacles and chimneys last year. Most interesting of all was to recognize at the southwest foot of Spearhead our Shamrock Lake still covered with ice as when we last saw it, and to verify our earlier conjecture that it was the source of the North Fork of Toby Creek.* We could now plainly trace the course of the creek at our feet, up the cascade and fall to the icy bosom of this lonely, frozen lakelet.

The real work of the day now lay before us along the narrow and much broken ridge to the southwest, the successive peaks rising each a little higher as if to lead us in easy stages to their conquest. One hour sufficed to cross the first saddle and reach the top of Peak No. 2 at 10.25, the aneroid reading 9,025 feet. Nowhere did we find any evidence of former ascents, and the four peaks which we traversed in succession during the day were evidently virgin ground. In another hour we had crossed the next gap to the summit of Peak No. 3, with an altitude of 9,375 feet. Here we built a cairn and left a record of the names of Mr. and Mrs. MacCarthy, W. E. Stone and Conrad Kain. The day was clear and mild, and afforded us an uninterrupted view in all directions. Just at our feet on the west lay the valley of Jumbo Fork of Toby Creek, beyond which we had excellent views of several conspicuous high peaks which later we came to know in detail. Between the main Toby Creek and Jumbo Fork is a broken range presenting toward the east a series of sharp peaks and great precipices which, as we saw them in the noonday sun, had a peculiar glistening appearance and for which we conceived the name of "The Shining Range." As we proceeded to

*Canadian Alpine Journal, 1916, p. 30.

Monument Peak

Photo, W. E. Stone

RANGE WEST OF NORTH FORK OF TOBY CREEK

Redtop

Photo, W. E. Stone

THE SHINING RANGE

Looking Southwest from Monument Peak

descend into the next gap and ascend on the south side to the last and highest peak of the range, we encountered increasing difficulties. A very narrow and broken ridge led steeply up to a sharp conical cap, which on the east broke away very steeply for some two thousand feet to the glacier below and on the other side, so far as we could see, was surrounded at the base by a nearly vertical cliff. Ascending by the northeast arête, we soon came to an impassable situation but, traversing toward the west, discovered a chimney on the north face of the cliff which offered hope and, after scrambling up some distance into a narrow cleft, there remained a dozen yards of a crack just wide enough to permit the insertion of an arm and leg. By dint of vigorous squirming, we accomplished this and came out on to the sky line, from which a few steps brought us to the summit at 3.15 p.m., the barometer indicating 10,025 feet. The name of Monument Peak has previously been assigned to this point and the altitude given on the authority of the Geological Survey as 10,050 feet. Our ascent was evidently the first to be made. We erected a cairn and left a record similar to that on the summit of No. 3.

Careless of the flight of time in enjoyment of the view and a balmy temperature, and expecting an easy traverse and completion of the day's work, it was not until 4.30 that we made ready for the descent. To our surprise we found that the way was cut off to the south and there remained the alternatives of retracing our day's route which had already occupied eleven hours, or to find some other, more direct way to the valley and our camp. After a reconnaissance, Conrad declared, "It is all right," with that peculiar inflection indicating a state of conflict between his thoughts and his words. It was decided to attempt the descent down the east face of the mountain to the glacier. We had observed this side of the mountain during the day with no thought that it was practicable or that we should be called upon to attempt

it. From the edge of the cliff, one could toss a stone clear of the rocks and see it fall upon the glacier two thousand feet below. To this had the pleasant sport of the day brought us; this breakneck, desperate choice, suddenly confronting us out of the happy vision of a careless and early return to the comforts of the camp. The task before us seemed formidable enough in the prospect; its realization was nothing less; clinging to smooth slabs, squeezing down narrow cracks, dodging falling stones, traversing to right and to left, using every art to defy the law of gravity, it required five hours of the most careful work before we set foot on the ice below and were able in some degree to relax the tension of our minds and muscles. Twilight was already fast merging into darkness. We were at the head of a glacier where no human foot had trod, and for an hour in the semi-darkness threaded our way among crevasses and over icy slopes, happily without accident, reaching at last a steep rocky slide descending to the impenetrable darkness of the forest and valley. As long as we were upon the ice and snow, there was a certain faint reflection of light by which we were able to discern our footing; now we were forced to pick our way in darkness over loose and sliding rocks, and then through a thicket of scrub and fallen timber, constituting the most disagreeable if not dangerous experience of the day.

From the heights above we had observed an abandoned mining shack near the edge of timber and reasoned that there must exist a trail from this to the valley below. Just as it seemed as if we were doomed to struggle in the darkness all night, Conrad exclaimed, "A trail!" and we felt hard, smooth ground beneath our feet. It led us immediately into thick timber where the darkness was blacker than before, but with no serious difficulty we made our way until in the distance we caught the gleam of firelight among the trees and soon there burst upon our eyes the welcome sight of the large camp fire

kindled to welcome our return. It lacked but a few minutes of midnight, and after eighteen hours of effort, some of which had been sufficiently strenuous to satisfy the most enthusiastic members of the party, the savory mulligan and warm blankets were the complete satisfaction of every remaining earthly desire.

After a day's rest, we climbed (August 1st) the black rock-peak at the head of the valley to the north, ascending as before to the terrace above the waterfall, turning westward to the snow-pass north of Monument Range and then to the right up the arête. The southwest face of the peak is precipitous and in part overhanging, but by traversing to the left we found an open chimney and after a sharp scramble of a couple of hundred feet over very treacherous, rotten, black shale, came out on the summit in four hours from camp, the barometer indicating an altitude of 9,400 feet. The position of this peak is a commanding one at the focus of three valleys, the South Fork of Horse Thief Creek, the North Fork of Toby Creek and a branch of the Jumbo Fork of Toby Creek. As we lunched and basked in the warm sunlight the sound of the streams in all of these valleys came distinctly to our ears. Communication between these three valleys is possible on foot by crossing from the North Fork to the source of the branch of Jumbo Fork by the route we had followed to the snow-pass on Monument Ridge; then without descending, by skirting the west base of our peak a short distance, a second snow-pass is reached, from which the descent to the Horse Thief South Fork is easy. Both passes are of about the same altitude, approximately 8,000 feet. Almost directly westward Commander Peak and Glacier were in full view, while nearer at hand and almost at the foot of our position lay the glacier from which the South Fork of Horse Thief Creek takes its source. Far away to the north, beyond Horse Thief Creek, an imposing range of high peaks attracted our attention, and with

that delightful disregard of time and distance to which high altitudes tempt one, we naively pledged ourselves to their conquest some future day. The geological formation of this peak is distinctly different from the others in the vicinity, consisting of black friable shale, splitting freely into thin plates and crumbling to a powder. Its shape, color and location make of it a conspicuous landmark and excellent observation point. It seemed an excellent location for a coal mine and at least *we* thought the name of Black Diamond appropriate. We built a cairn and left in it a record of the ascent and the names of Mr. and Mrs. MacCarthy, Mr. and Mrs. W. E. Stone and Conrad Kain, and returned leisurely to camp, glissading down the snow banks on the south-easterly slope.

The ascent of Mt. Nelson from the North Fork basin is easily accomplished, and wishing to avail ourselves of the opportunity, we broke camp on the morning of August 2nd, and, descending the valley two or three miles to Nelson Creek, the first tributary of the North Fork above its mouth, turned up the trail leading to the northeast into a steep valley at the foot of Mt. Nelson. At the timber line we literally dug ourselves in on the steep side hill and established camp No. 3 at an altitude of nearly 7,000 feet. Late in the afternoon we were joined by Mrs. Vincent and Mr. John Vincent, who were none the less welcome because of the food supplies which they conveyed. A rainy night was followed by a day, August 3rd, of snow squalls and magnificent cloud effects on the heights. This did not deter us from an ascent of Mt. Nelson, in which nearly the whole party joined. The course lay up the valley to the source of Nelson Creek, across a small glacier and then on to the westerly arête which was followed to the summit. The party contained several novices, the rocks were powdered with fresh snow, and the day was boisterous and cold, but the whole number reached the summit without

Photo, W. E. Stone

MONUMENT PEAK
Looking Southeast

Jumbo Commander

Photo, W. E. Stone

LOOKING WEST FROM BLACK DIAMOND

difficulty about four hours from camp. Mt. Nelson, the easterly outpost of the Purcell Range, commands a splendid view of the Columbia River Valley and the Rocky Mountain Ranges to the eastward. On this day the scene was of unusual beauty under the shifting lights and shadows of the swift-flying clouds. We made but a brief stay on the summit owing to the weather conditions, rebuilding the shattered cairn left there by previous visitors, and leaving a record of the date (August 3rd) and the names of the entire party making the ascent, viz., A. H. MacCarthy, Mrs. Vincent, Mr. and Mrs. W. E. Stone, Elise Hopkins, Elinor Hopkins, Madeline Turner, John Vincent, and Conrad Kain, guide.

During the succeeding night the sky cleared and the temperature fell below freezing. Our morning sensations were of the magic transformation wrought by a white frost as the tardy sun shot his slanting rays over the eastern ridge, of the misery of morning ablutions, and of the general perversity of all the camp gear as with numb fingers we performed the routine of packing and moving. Conrad reminded us that it was the anniversary of the frigid night spent on Mt. Whitehorn in 1913 and at the vivid recollection my teeth chattered anew. At this rate, August 4th, may come to be characterized in our calendar not as a "red letter" day, but a day for red flannels. Having accomplished our mission on Mt. Nelson, we left for the main valley to continue our course up Toby Creek to Jumbo Fork. It was a day of varied experiences on the trail, in swamps, and through fallen timber. Late in the afternoon we arrived at Jumbo Fork coming in from the north to join Toby Creek. Leaving the main trail, we turned to the right and from the brow of a low hill enjoyed a fine view of the Jumbo Valley, its dark forests making an agreeable contrast with the desolate, burnt-over slopes which thus far had been encountered on Toby Creek. The Jumbo Fork is a beautiful, clear stream, skirting close to the steep slopes

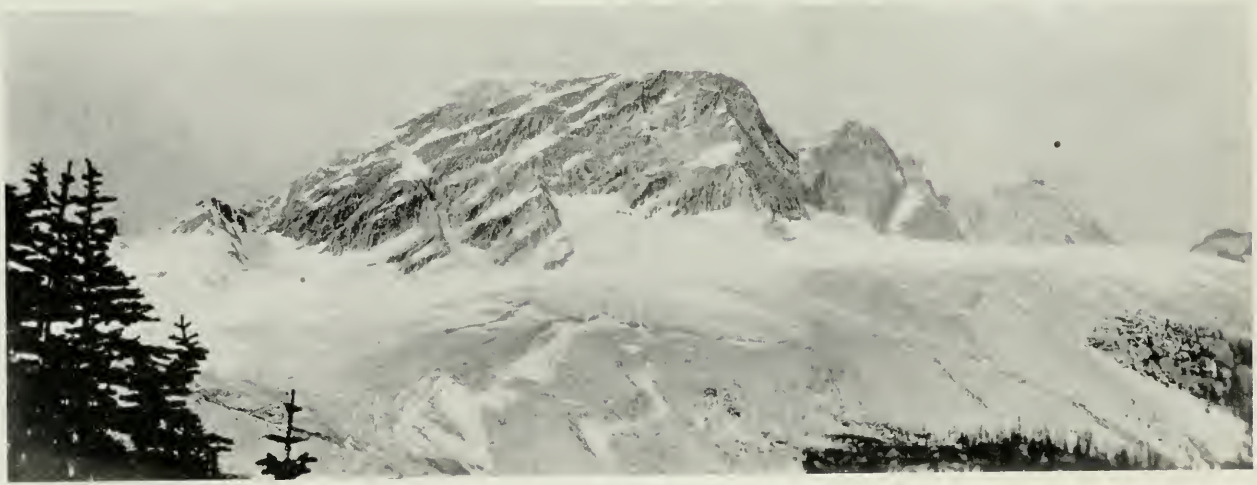
of the Shining Range on the south side of the valley. To the north the Jumbo massif was conspicuous and to the eastward Monument Peak was a prominent landmark. Far ahead through the vista of the enclosing ranges, unknown snow-peaks marked the region to which we were bound. Camp No. 4 (August 4th) was made in a clearing near an abandoned lumber camp, where we were especially grateful for the accommodations of the cook shack on account of a smart shower which surprised us before preparations for the night had been entirely completed.

Continuing up the valley on the following day, the trail crossed a timber slash and then for some miles followed the creek through beautiful forests, alternating here and there with "slides" in which the grass and herbaceous plants grew rankly, shoulder high. We observed flowers in great abundance which we had seen but sparingly or not at all elsewhere and were impressed by the fact that these narrow and isolated alpine valleys seem each to have its own characteristic flora. Indeed, it is quite conceivable that certain plant species, taking kindly to the peculiar exposure and soil of a certain valley, would flourish there exclusively, prevented from spreading to other nearby valleys by the impassable barrier of eternal snows. We noted, for instance, that the Devil's Club was not seen in any of the tributaries of Toby Creek on the eastern slope of the divide, but later, when we crossed Wells Pass, in an hour's descent on the western slope, we came into abundant thickets of this well known pest. In the high meadows bordering on Nelson Creek a species of larkspur occurred plentifully, which was not observed elsewhere. As we proceeded we had from time to time, through the deep, lateral canyons in the range to the south, views of distant snow peaks and recognized in them the high places of the Shining Range which had attracted our attention from Monument Peak.

Soon after noon we came to the forks of the stream, one the main stream coming from the north and the other, which we have named the South Branch, flowing out of the valley to the west and southwest. The bridge which had evidently at one time crossed the main branch had been swept away, and while the pack train essayed the dangerous crossing half under water, the ladies were forced to the ignominious expedient of "cooning" a convenient tree which had fallen athwart the tempestuous current. A hundred yards beyond, the trail crossed the South Branch but here a substantial bridge was still intact. Near by between the forks stands an old trapper's cabin, the roof sustaining a flourishing growth of vegetation. The trail now followed closely to the south or the right bank of the south branch of Jumbo Fork, gradually rising and bending to the southward and finally emerging from tall timber on to a rocky terrace which had evidently been swept many years ago by an avalanche, but now sustains a vigorous growth of young firs. This was a favorable camp ground except for the scanty feed for the horses and here, beside one of the many streams threading the valley, camp No. 5 (August 5th, altitude 6,225) was established for several days. Here the south branch of Jumbo Fork takes its source, the stream dividing itself into a dozen tributaries in a wide amphitheatre facing the north and east. The dominating feature of the scene was a bold rocky range on the west, consisting of three separate peaks rising from a high snow-plateau. Immediately below them at the head of our valley rested a broad glacier. To the north were a series of rocky points separated by green valleys, and to the south a long ridge dotted with snow-banks and culminating on the east in high, rocky ridges with another glacier lying beneath their northeasterly cliffs. A day was spent in establishing camp and in reconnoitering the surrounding region. An afternoon's jaunt (August 6th) up to the glacier at the west end of the valley revealed a magnificent view to the northeast,

bounded by the Jumbo Range, with glimpses of a splendid mountain country to the north and west. This region was wholly new, not even indicated on the maps, and apparently offering most attractive mountaineering excursions. During the afternoon our party was augmented by the arrival of H. O. Frind with a Shuswap retainer and a supply of food.

On the 7th, the day was spent in a traverse from south to north of the range to the west which, from the peculiar block-like conformation of its principal peak and the fact that it headed the valley, we named the Blockhead Range. Going up over the slopes to the southwest we were able to trace an old trail quite to the summit of the ridge and beyond, the route crossing a feasible pass over the divide to the headwaters of Hamill Creek. From this point we gained the first near view of Mt. Gleason and the magnificent snow clad range beyond Wells Pass. Following the ridge to the right we soon reached the foot of the first peak and, while resting before beginning the ascent, were greeted by the familiar squeak of a Pika hare or "haymaker." These little animals occur infrequently in this region, this being the only one observed during the entire summer. Of all the mountain dwellers this is the most humorous, interesting and charming, and one is always gladdened by his appearance. We had a most interesting rock scramble up the south arête of Mt. Blockhead over a confusion of rectangular, granitic blocks varied in one or two places by steep, smooth slabs over which water from melting snow trickled most treacherously. The summit was reached at 12 o'clock, four and three-quarter hours from camp. After lunch a cairn was erected and in it placed a record with the following names: Mr. and Mrs. A. H. MacCarthy, Mr. and Mrs. W. E. Stone, Mrs. G. E. Vincent, Elise Hopkins, John Vincent, H. O. Frind and Conrad Kain. The barometer indicated an altitude of 10,075 feet.



Photo, W. E. Stone

THE BLOCKHEAD RANGE
From the East

The range of which this was the culminating point, extends along the divide between the headwaters of Toby, Hamill, Glacier and Jumbo Creeks and the altitude afforded a far view in every direction. Easterly we could discern the peaks with which we had become so familiar, but to the north and west was an entirely new and strange scene. Hitherto entertaining the belief that the highest and most interesting mountains of the Purcell Range lay between Horse Thief and Toby Creeks, we now found it necessary to revise our impressions, for the splendid snow-clad range southwest of Wells Pass was equal in alpine quality to anything which we had seen in all this region. But the climax came when, turning toward the northwest, the eyes swept upward from gloomy canyons toward the varied features of a magnificnt massif, glaciers, vast snow fields and lofty heights and finally, as if irresistibly attracted, came to rest upon the apex of the range, a snow-white peak, immaculate and remote from all the world; an alpine spectacle as rare as beautiful. Silently we gazed on the wonderful scene and in the heart of each arose the determination to storm that alpine stronghold. This range is apparently that seen by Harnden from the summit of Mt. Monica in 1911 and referred to as the 'West Kootenay Mountains."* The three peaks of the Blockhead Range emerge from an extensive névé which surrounds them on all sides. Between the first and second peaks rests a connecting arm of the glacier which drains toward Hamill Creek on the west and the south branch of Jumbo Fork on the east. At the foot of the second peak, we came upon an entirely different rock formation composed of strata of beautiful pink, white and green quartzite, collected in a great confusion of broken slabs and blocks at the edge of the glacier. The altitudes of this and of the third peak were not recorded, being somewhat lower than the main peak of the range but well above 9,000 feet. Curiously, the third peak

*Appalachia, April, 1912, p. 361.

consisted of a still different geological formation of rotten, laminated shale and we counted it noteworthy that these three peaks so closely connected should differ so widely in this respect. We descended with no little difficulty on the northwest ridge after having traversed the entire range. In this way we reached a saddle from which we could look down on the headwaters of the south branch of Glacier Creek flowing north and fed by the glaciers of the West Kootenay Range. All day we were conscious of this great range and the beautiful snow peak to the northwest and now took one last, fascinated look in its direction before descending into the valley and returning to camp for the night. Before darkness fell we had made our plans for an expedition to this newly discovered region on the morrow.

The distance was too great for a single day's effort and since the intervening range was impassable for the pack horses, we prepared necessary bedding and food, and at noonday (August 8th) set out, a party of seven, to establish a bivouac at the head of Glacier Creek. Following toward the northwest the bed of one of the tributaries of the South Branch filled with loose boulders and fed by many cascades from the high cliffs underlying the Blockhead Glacier, we came up into a trough-like green valley at the head of which the pass across the divide, covered with snowbanks, showed an altitude of about 8,000 feet. Descending on the northwest side through a steep, boulder-strewn region, we reached a little bench above the branch of Glacier Creek, where scattered clumps of fir provided an ideal place for a bivouac at an altitude of about 7,000 feet. A lively squall of snow and rain had dampened our clothing but nothing could quench our enthusiasm for the task ahead, although as night fell the low hanging clouds disappointingly prevented a view of the great glaciers which we knew lay on the opposite side of the valley. On this grassy slope and between the picturesque clumps of firs, white

heather in dense masses was blossoming in all its fragrance and beauty. From far below came the roar of Glacier Creek and when we had built a fire, cooked supper, and prepared our sleeping bags under the shelter of the low-hanging boughs, the situation approached that ideal which the mountaineer cherishes in his imagination.

At daylight, August 9th, the call of "all hands" broke our slumbers and the preparation and consumption of breakfast occupied so little time that in the early morning we were skirting the north slope of the valley up to the tongue of the long glacier which descended on the southern limit of the range. We were soon on the ice and, making easy progress over its frozen surface, reached at 7.45 the foot of the bold projecting rock ridge which stands out like a cleaver between two immense ice-falls. As it proved, this was the only feasible route by which to ascend from the valley on to the névé at the head of the different glacier tongues which we had observed from below. The ridge narrowed, became more precipitous, and finally lost itself in an overhanging cornice of ice, through which we had to cut our way. When at 9.30 we emerged upon the great ice plain of the main glacier, we realized that nearly two hours had been consumed in what had at first seemed only an incident in the climb.

Meantime, the clouds had been gathering and thunder peals were reverberating from the great peaks on all sides. Suddenly, our ice axes began to hum with electrical discharges and then snow began to fall. We were enveloped in a strange greyish-white envelope blending with the snow, in which it was impossible to distinguish between earth and sky. For aught we could see, we might be either walking on this curious atmosphere or the snowfield might have enveloped us. The situation was interesting and novel but, more than this, it was dangerous in view of the raging storm and our

entire ignorance of our surroundings. Having taken bearings, however, before the clouds shut down and proceeding cautiously, we advanced up the glacier for more than an hour without incident. After a while the lifting clouds showed us an area of crevasses to the right and, while we sought to avoid them, presently the storm ceased; the misty envelope grew lighter and, suddenly, blue sky appeared above; and then, as if dramatically planned, the curtains were swept aside and there appeared before us our mountain quest, a splendid, imposing, snowy form resting on a snow-white plain. It was as if the battle of the elements halted at the appearance of this white flag of truce. Our anticipations which had been restrained by the clouds and the storm were now realized in one splendid transformation. The fresh snow had clothed the whole scene in whiteness such as I have never seen equalled. Right and left, sharp peaks of black rock stood guard around the central figure of this immaculate, beautiful mountain. Under the veil of the storm, we penetrated into a scene that impressed us as an alpine sanctuary, a spot where the foot of man had never trod and where the genii of the mountains must surely dwell.

The mountain itself displayed the symmetrical form of a tent with the long axis extending north and south. From our position we saw the long, eastern face. The summit ridge sloped gently toward the south, terminating at each end in steep descents to the surrounding snow-field. An hour had been spent in crossing the névé and now with clearing skies we were able to direct our course toward the north arête, the face directly before us offering no possibility of ascent. We found the north arête to consist of a narrow ridge of corniced snow not unlike some parts of the Victoria ridge and requiring the utmost care in choosing footsteps. A cold, biting wind pierced our clothing and swirled the drifting snow about us. We kicked deep steps into the soft snow, beating our hands for warmth and wondering in our

Photo, W. E. Stone

WEST KOOTENAY RANGE FROM MT. BLOCKHEAD

minds if the spirits of the mountains were again summoning the elements to defeat us in the ascent. A malicious gust snatched away a hat and dropped it on the edge of the bergschrund a thousand feet below. Slowly upward, step by step, we contested the way until at last the summit ridge could be seen through blinding snow-flurries. The MacCarthys were asked to take the lead for the honor of being the first at the top. Breaking through a last cornice, it was with an unusual feeling of awe and almost reverence that we gathered on the summit. This indeed was no ordinary ascent. Peaks by the score we had climbed but never before had we experienced such a feeling of penetrating to the holy of holies of the mountains where, remote and high, the alpine spirits held undisturbed sway. We felt as if some ceremonial should celebrate such an event; as if propitiation should be offered for our human intrusion; or sacrifice in token of our gratitude. In reality, such romantic ideas were speedily dispelled by the insistence of two very realistic bodily sensations of cold and hunger. So we made offerings to these on a patch of bare rocks on the western side of the ridge.

The time of our arrival was 11.10, the barometer reading 10,975 feet, although weather conditions may have had their effect upon the instruments. The mountain will undoubtedly rank in altitude among the highest of the Purcell Range. Commemorating the incident of our first complete view of the mountain, we chose the name Mt. Truce. To the westward, where we hoped to discover new sights, the view was obscured. Forty minutes was the limit of our endurance in the cold winds and clouds, and after erecting a cairn and leaving a record with the names of Mr. and Mrs. A. H. MacCarthy, Mr. and Mrs. W. E. Stone, H. O. Frind, John Vincent and Conrad Kain, we proceeded along the ridge, traversing the entire mountain from north to south, making an easy descent down the south arête and reach-

ing the snow-saddle intervening between us and the next peak at an altitude of 10,050 feet.

Without halting and taking advantage of a lull in the blustering weather, we started up the steep snow-ridge leading to the second peak to the south and, after about three-quarters of an hour of hard work battling with the rising wind and a sharp hailstorm, stood on the summit of the broken rocks of this second peak at one o'clock, the barometer reading 10,875 feet. Driven by the fierce winds, clouds swirled and boiled about the summit as from some volcanic pit, suggesting the name of Cauldron for the peak. The cold had now become severe. We were in danger of frostbites and were obliged constantly to beat our hands and rub our ears to prevent it. We stayed only long enough to build a small cairn and leave a record with the same names as on Mt. Truce. Mt. Cauldron terminates in a perpendicular cliff on the south, overhanging a long glacier lying in a trough between it and the Blockhead Range to the southeast. The northwest face offered a tempting glissade as the best method of descent to the glacier below, but scarcely had we started when smooth ice, covered with a sprinkling of fresh snow, was encountered and we shot down with more speed than grace. Fortunately, the ice extended only about 200 feet and, landing in soft snow, the anxious moment gave way to jokes and mutual recriminations. The storm now relented as if its final effort had been spent in driving us from the summit and the unobscured sun soon compelled the use of colored glasses. I have never seen such dazzling whiteness or blinding light. Returning across the snow-field, we reached the route of the ascent but the tracks were nearly obliterated with drifting snow. We found the way, however, without difficulty, back to the ice-fall and the one place where descent on to the rock-ridge was practicable. From this point the return was without incident and at four o'clock we had crossed the lower glacier to the moraine, after

having been on the ice and snow almost continuously for ten hours. The cache where our packs had been left was soon regained and there now remained the unromantic and toilsome climb over rocks and scree to the divide and the uninteresting descent along the stream through the timber to camp, where we arrived about seven o'clock, tired as only one can be after such a day's exertion and with the feeling of exaltation and pleasure which can only come from such an experience as we had enjoyed.

The following day might well have been observed in rest but from the high ridge to the southeast of camp came an invitation which could not be declined. A party of five spent the day in traversing the two summits, reaching an altitude of 9,825 feet. From the extreme point there stood revealed a fine, pointed peak of higher altitude, which seemed to terminate the range in the direction of the southeast, but it was too remote and difficult to be attained on this day which had been begun too late and used too leisurely. It was reached and climbed on the following day (August 11th) by Mr. and Mrs. MacCarthy and Conrad who reported an interesting ascent and an altitude of 10,325 feet. This peak is conspicuous for its red color and sharp, needle-like contour. It is probably the highest point in the so-called Shining Range between Jumbo Fork and Toby Creek. Harnden, who noticed it from Wells Pass in 1911, suggested the name of Needle Peak, but since this designation has been given already to several other mountains, it seems desirable to apply a more-distinctive name for which we have selected that of Red-top.

On the evening of August 10th, the camp celebrated Conrad's birthday with appropriate impromptu ceremonies and eatables. On the morning of the 12th, having pretty thoroughly explored all of the region about us, the tents were struck and the party set out for the headwaters of the Main Branch of Jumbo Fork. Retracing our course along the South Branch to the forks of the

stream and crossing both streams, we found an indistinct trail on the east side of the valley, which we followed to the north. The ponies became involved in a labyrinth of fallen timber, the trail having been long unused. Lunch was eaten at the crossing of the stream and, having gotten over to the west side of the valley, good progress was made over a fairly good trail steadily ascending and evidently leading up to a low place in the ridge on the divide between Jumbo Fork and Glacier Creek. Convinced that this led us away from our destination, we picked up an old trail on the edge of a slide which brought us again into the valley and to the creek, and at five o'clock reached an open meadow and an ideal place for camp.

Among the varied experiences of mountain exploration, one of the most interesting is thus to penetrate into an unknown valley, to discover the source of a stream whose picturesque course has guided your footsteps for miles, and to survey the conformation of the vast amphitheatre in which mountains, glaciers, waterfalls and forests array themselves in new combinations. To arrive in such a spot means to achieve the end of the trail, the completion of a given task and the beginning of a new one. After the pitching of a camp with more or less thoroughness according to the length of stay contemplated, attention is turned to the surrounding peaks and for days one dwells on the summits of great mountains whence his physical and spiritual vision wanders far over the heights but returns with satisfaction to the upward curling smoke of the campfire and the white tents dotting the green valley far below. With such sensations, we established camp No. 6 in the most interesting and charming place in which our tents were pitched during the whole expedition. The open meadow (altitude 5,650) furnished an abundance of feed, a dry place for camping and numerous clear, cold streams for bathing and drinking. Along the western side a saw-toothed range

composed the skyline and marked the divide; to the north the valley lost itself in a high snow-covered ridge; and on the east, dominating all else, towered the pyramid-shaped, unclimbed and unnamed twin of Jumbo. This was the goal for which we were striving and which, after a day of exploration, we attained.

We awoke the next morning to find the scene whitened by a sharp frost and the still pools of water covered with ice. The first day (August 13th) was spent in exploring the head of the valley, which we reached through a mile or two of wet brush, and then ascended above the source of the stream upon a small glacier to the summit of the snow-pass. Here we came out on a broad snow-field, the southern source of the great Starbird Glacier beyond which Mt. Bruce rose in isolated majesty. Close at hand on the west, beautiful Mt. Monica displayed its white domes. Following up the ridge toward the east, we looked down almost perpendicularly upon Lake Maye, dotted with floating ice and bathing with its jade-colored waters the foot of Jumbo Glacier. Late one afternoon last year we had stood on the summit of Jumbo and, looking across the snow-field to the west to another snow-covered symmetrical peak, regretted that time would not allow an attempt to ascend it.* From our present position we saw an entirely different aspect of this imposing peak which we had come so far to attack from the western side. The high altitudes of Jumbo Glacier, resting on the east side of the mountain, detracts from its apparent height when seen from that side. But now we looked upon the westerly face of the peak rising abruptly from the floor of the valley more than 6,000 feet, a huge pyramid with sheer and almost perpendicular faces.

Skirting its lower slopes on our return to camp, we amused ourselves in stalking two goats who were feeding in a little gully. One of them becoming suspicious of our

*The Canadian Alpine Journal, 1916, p. 25.

presence, took post on a projecting rock and, after a solemn survey of the surroundings, deliberately turned tail toward us and lay down in fancied security. An attempt to secure a photograph destroyed the charm and both animals went galloping over the ridge and, as we supposed, were lost to future view; but presently on a distant slope we saw them scrambling toward the skyline, having gathered to themselves other members of the family, numbering nine in all, including one or two kids. With that incredible ease which is the despair of the mountaineer, they had soon gained the crest of the ridge and disappeared from view, one dignified old billy lingering on the skyline to cast a final glance of contempt upon us.

We were now ready for the attempt upon the great westerly tower of the Jumbo Range and on the following morning (Aug. 14) set out in the early twilight, the whole route of the ascent rising directly before us. An hour's steady effort without rest brought us through the timber. At nine o'clock we were on the rocks and an hour later stood on the first bench or shoulder at the foot of the great central arête leading up to the final tower. Flanking this arête to the north, the whole mountain side was one smooth, steep slab, a terrifying prospect to the climber but which, fortunately, we were not called upon to essay. The rock was loose, sliding shale but, as we made our way upward, the anticipated difficulties of the ascent disappeared. Soon we were on the second bench and stopped for lunch and rest. At twelve o'clock we had reached the foot of the final tower which terminates the peak and gives character to its aspect. Stopping to examine the interesting chimneys into which the tower is cleft, we found that it was practicable to skirt the base on the south side and so come easily up into a snow-saddle just below the peak. As so often happens under such circumstances, as we approached the saddle, we came with a few steps abruptly

Photo, W. E. Stone

MT. TRUCE
Looking North from Mt. Cauldron

Commander Jumbo Karnak

Photo, W. E. Stone

JUMBO RANGE
Looking S. E. from Snowfield at Head of Jumbo Fork

face to face with the whole grand view to the eastward of the mountain. Before us lay spread Jumbo Glacier, flanked on the right with Jumbo Peak and in the distance with the long rounded ridge of Commander. A few minutes later, at 12.30, five and one-half hours from camp, we stood on the narrow, broken point of the summit where there was scarcely room for our party of five. The barometer indicated an altitude of 11,050 feet, confirming our belief that this summit was approximately the same height as Jumbo itself (11,125 feet). A cairn was built and in it placed the names of Mr. and Mrs. MacCarthy, Mr. and Mrs. W. E. Stone, and Conrad Kain.

As had so frequently occurred in other ascents of this season, we were favored with pleasant weather and a clear sky, which gave us a chance to photograph and take bearings on all of our recent acquaintances, Red-top, Blockhead, Truce and Cauldron, as well as to verify the new and often strange aspects of high altitudes in all directions. In every one of the ascents which we had made in this region, the beautiful range to the southwest beyond Wells Pass impressed us with its height and beauty and now we looked upon it again with keener interest since this was to be our next objective. Remaining until 2 p.m., we descended rapidly over the sliding slabs of shale to the third bench and then, turning to the right into a snow-filled couloir, enjoyed an almost uninterrupted glissade far below the timber-line, returning easily to camp at 4.15 in the afternoon. What had promised to be a climb of more than usual difficulty had been accomplished with average effort, although the height and position of the peak made this one of the most important ascents of the summer. Obviously, a mountain of such altitude and dignity can no longer be referred to as the twin of Jumbo. In seeking a suitable name, a fancied resemblance to something Egyptian in its characteristics makes appropriate the name of Karnak, which it was agreed should be bestowed upon it.

On the 15th of August, we were again on the march. As we broke camp at 8.30, too early for the morning sun to have penetrated over the high eastern wall of the valley, we could plainly discern the morning star glowing in the zenith. All day we plodded down the valley to the junction of Jumbo Fork with Toby Creek, where we regained the main Toby Trail late in the afternoon and turned westward up stream in the direction of Wells Pass. By nightfall we had reached Earl Grey cabin, a comfortable camp, where we bivouacked (No. 7). The position here is a commanding one for an outlook up and down the valley, but the destruction of green timber in every direction by fires and the lack of water make it a less attractive camp than many others. We were still a day's journey from our destination and the following day (Aug. 16) was spent on the trail. From time to time from midday on we caught glimpses of what is undoubtedly a fine waterfall on Toby Creek and a little after noonday stopped for lunch in a meadow not far from it, but the thick timber and its position in a considerable canyon prevented a closer view. Late in the afternoon we saw the source of Toby Creek, its copious waters gushing out from the tongue of Toby Glacier lying to the southward of Wells Pass. The trail leading up the pass zigzagged back and forth over steep flower-strewn, grassy slopes which, in bygone days, had doubtless met the pressure of the great glacier, at one time filling the head of the valley. Now its sheltered aspect, its beautiful flowers, and its vivid colors were all significant of the peaceful rather than the elemental side of nature.

We had planned to camp near the summit of the pass, but, when we had crossed over the ridge, encountered many snowbanks and no suitable stopping place. Led on by the hope that we should soon come to a rivulet of water and some more favorable camp ground, we kept on descending the trail, which followed an almost continuous grade towards the north upon the east side of

the valley, until nearly nightfall, by which time we had descended to the level of Hamill Creek, a distance of some two or three miles beyond the pass. All of the way our attention was riveted upon the magnificent range of mountains across the valley to the southwest, from which we were separated by a tremendous and apparently impassable gorge. While we realized that every step forward took us farther and farther from the head of the valley, across which lay our most practicable route to reach this range, we had really no choice but to seek a suitable camping place for the night and determine the most feasible point of approach to the mountains on the morrow. This range has been alluded to by Harnden and an excellent photograph, taken from Wells Pass, is to be found in Appalachia, April, 1912, p. 356, also Canadian Alpine Journal, 1912, p. 98. Ranging northwesterly from Mt. Gleason, which was ascended by Harnden in 1911, this splendid range culminates in three or four peaks, which doubtless approach 11,000 feet in altitude and from all appearances offer most interesting problems to the mountaineers who can succeed in placing foot upon their slopes.

When we had come to the crossing of the trail on Hamill Creek, we turned up the creek for a little distance seeking a suitable place for our camp (No. 8) and compromising finally on a sheltered spot in a thicket of alders, the gathering darkness leaving us none too much time to pitch the tents and prepare for the night. Luckily, this task was done with some thoroughness, for long before daybreak we were awakened by the sound of falling rain and for two days found ourselves storm bound. Conrad, going out the next day to reconnoitre up the valley, returned drenched and half frozen to report no feasible route to the mountains in that way. The valley was a jungle of dense alders. As was to be expected, on the western side of the divide the whole character of vegetation had changed. Devil's clubs,

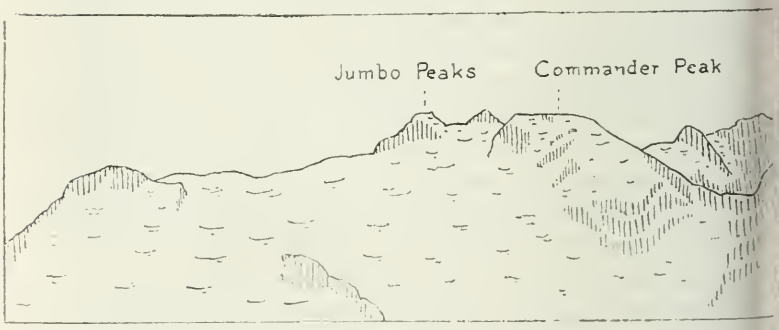
ferns, alders, cedars and all of the other usual varieties and kinds of impediments to progress were to be found here flourishing to the utmost. We now waited only a suitable change in the weather to permit a re-location of camp nearer Wells Pass and a more acceptable route to the great range which we wished to conquer. During the second night, however, the rain changed to snow and all the second day we could only chafe at the delay and expend our energies in keeping dry and comfortable. Trees and bushes were weighted down with their white burden. Dry firewood became scarce. All nature seemed dispirited. A little fledgling bird kept up its mournful cry in the thicket nearby and was later found frozen. Another curious little bird, with absurdly long legs and the appearance of a thrush, kept hopping about the tents and peering in as if he wished for company and comfort. Out on the sandy flats of the stream we noticed many bear tracks and it required no great stretch of the imagination to fancy what reprisals upon invaders might be attempted by the denizens of the valley.

The morning of the third day (Aug. 19) brought breaking clouds and we made haste to depart. Our knowledge of the valley consists of fleeting glimpses of black cliffs and high snow-slopes caught between the wreaths of rising mist and we turned back up the trail, ankle deep in soft snow, bitterly lamenting the conditions which had disappointed us. It soon became evident that our plans for climbing had been entirely upset for many days. The depth and extent of this summer snow, which had whitened the whole country far below the timber line, being quite exceptional and producing conditions upon the high summits which would render climbing quite impossible. This situation, as well as the depleted condition of the commissary, decided the question of an immediate return to the ranch. Regretfully, we gazed again to the cloud-swathed heights of which we had anticipated so much and then crossed the divide and

started on the return. Wells Pass commands an almost uninterrupted view of the Toby Valley as far as its confluence with the Columbia. As we saw it this morning, the scene was entirely transformed from that which we had viewed two days before. As far as the eye could reach, all of the lower mountains were white and the flower-strewn slope up which we had come with so much enthusiasm two days before was covered with melting snow. The change which we noted was curiously indicative of how closely in these alpine regions the loveliness and the cruelty of Nature are connected. Two days before we had greatly admired this unique and beautiful spot, little thinking that danger and disaster lurked so near. A word of caution had already been spoken to those who were descending the trail on foot, when one of the ponies, in turning a sharp corner, stepped off the trail on to the slippery grass and before he could recover his footing, found himself slipping swiftly down the slope and in an instant had disappeared over the cliff, below which lay the broken glacier. It was all over in less time than it takes to describe it but some time elapsed before two members of the party could reach the unfortunate animal and the report of a rifle told us of the stern necessity which had been thrust upon us. It was a swift and illuminating example of the ever constant presence of danger in the mountains and the particularly treacherous nature of such a combination of wet snow on a smooth, steep, grassy slope. Without further incident, we reached Earl Grey cabin that night (Camp No. 9) and by the next night made our last camp at Jack Pine. At midday on the 21st we were again enjoying the luxuries and delicacies of clean clothing and fresh vegetables at the ranch. Twenty-five days had elapsed since our departure, in which time we had travelled over the various trails about 150 miles; made ten camps; climbed thirteen peaks of from 9,000 to 11,000 feet altitude, of which twelve were first ascents, and six over 10,000 feet, and had located five passes, besides securing data for

many important additions to the map of the region between Toby, Horse Thief, Hamill and Glacier Creeks. In the two seasons, explorations of which this article records the final results, the topography of this region has been fairly well determined and, while its principal peaks have been visited, there still remains here much to be done in the way of further exploration and climbing.

In the 1916 number of the Canadian Alpine Journal, an error occurs in the designation of peaks shown in the plate facing page 22. Correct naming is indicated below.—Editor.



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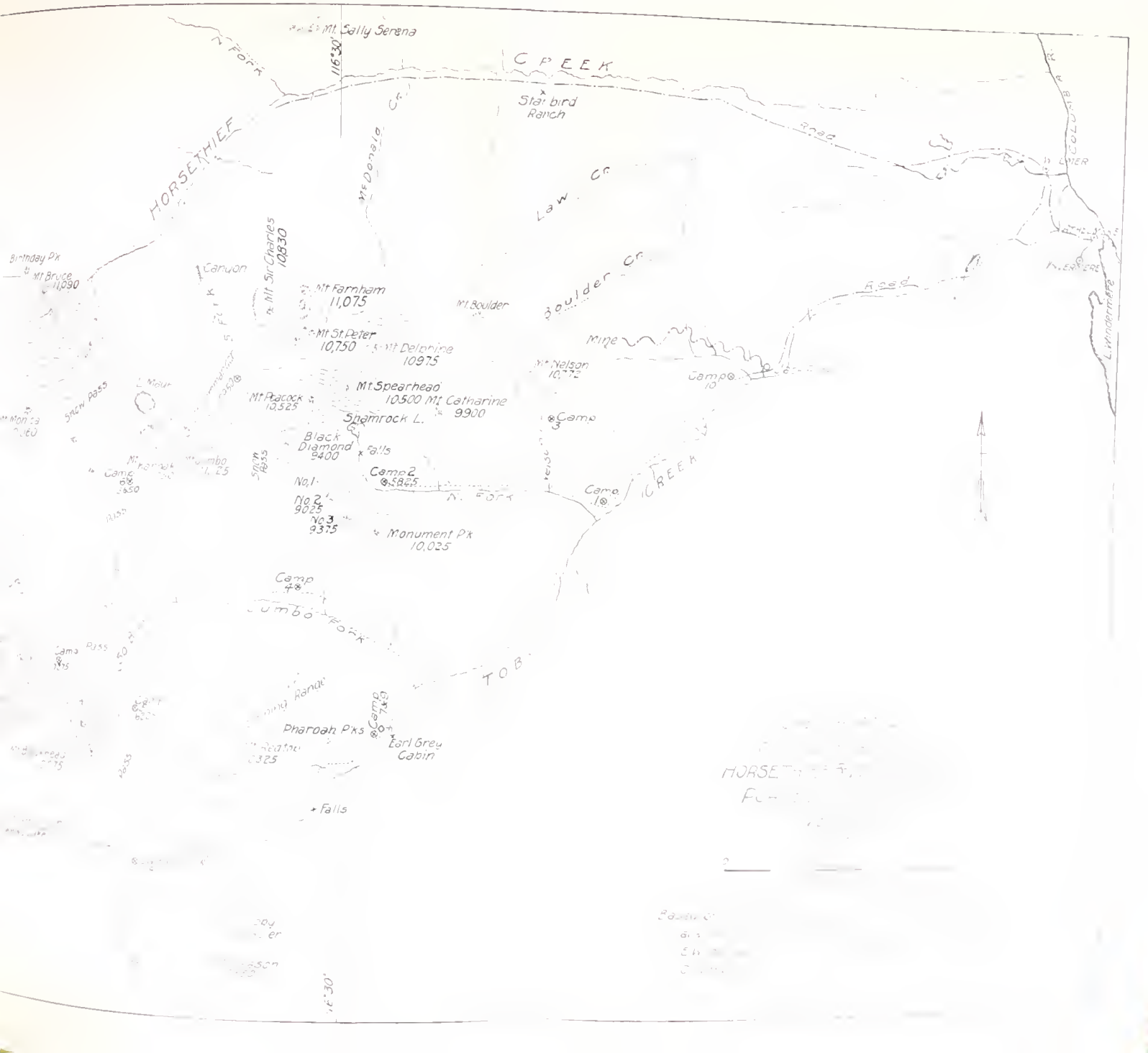

Mt. Sally Serena
N. Fork
C R E E K
Starbird Ranch
Road
Mc Donald Cr.
Law Cr.
HORSETHIEF
Mt. Sir Charles 10,830
Birthday Pk
Mt. Bruce 11,090
Carwon
Mt. Farnham 11,075
Mt. Boulder
Boulder Cr.
Mine
Mt. St. Peter 10,750
Mt. Delphine 10,975
Mt. Nelson 10,772
Camp 10
Mt. Spearhead 10,500
Mt. Catharine 9900
Mt. Peacock 10,525
Shamrock L.
Camp 3
Black Diamond 9400
Falls
Camp 2
No. 1
No. 2 9025
No. 3 9375
Monument Pk 10,025
Camp 1
Camp 4
Pharoah Pks
Camp 7
Earl Grey Cabin
Falls
Lake Windermere

FOLDOUT BLANK

THE THIRD ASCENT OF PINNACLE MOUNTAIN*

By Louis S. Crosby

Most of my readers will remember well the excellent account of the first ascent of Pinnacle Mountain by J. W. A. Hickson in 1909 as recorded in volume two, number two, of this Journal. His article has always been an allurement to me and I was determined after attaining some experience to make an attempt on the peak from its southern slope and climb the chimney of fifty feet at the point where his party found it necessary to rope off. I was extremely fortunate in being able to secure the services of the same two guides who piloted Dr. Hickson safely to the top, namely, Rudolph Aemmer and Edward Feuz, Jr.

At five a.m. September 23rd we took a surrey for Moraine Lake, where we arrived shortly before seven; it was quite dark when we left but now the rays of the rising sun could be seen striking the tops of the Ten Peaks and Temple. With the exception of a few scattered cumulus clouds in the vicinity of Deltaform, the sky was clear and gave every appearance of remaining so for the next twenty-four hours. Feuz, however, had noted that on the previous day the barometer indicated a change and was of the opinion that our climb would be the last of the season in this region and doubtful if the weather would hold to make it. About a mile from the lake an old mother grizzly and her two cubs scampered across the road in front of us, not more than fifty yards away. When they considered themselves at a safe distance, they halted and perched upon some fallen timber, taking a good look at us before proceeding

*The second ascent was made by Mr. Allan Carpé, of New York, with the Swiss guide, Rudolph Aemmer, in August, 1916.

towards the Tower of Babel, where they probably were going to attend morning worship.

Moraine Lake can no longer be called an uninhabited spot, Miss Strick having established a permanent camp at the end of the tally-ho road, a few yards from the edge of the water. As none of the inmates were yet astir, we did not demand breakfast, simply put an end to their slumbers with a few war whoops, declaring who we were. A good pony trail now connects the tally-ho road with Larch Valley, which we reached easily by eight o'clock; here we stopped for a few minutes' rest and took a few snapshots of the Ten Peaks and Pinnacle—our quest—which now showed up splendidly in the morning sunlight. I must confess that from this point it does not look so difficult as it proved to be.

After proceeding up the trail which leads to Sentinel Pass a short distance, we branched off into the draw to the south which leads up to the saddle between Pinnacle and Eiffel. We halted for breakfast at 8.20 and twenty minutes more saw us ascending an easy snow-slope at the head of the draw. The snow carried up to an altitude of about seventy-eight hundred feet and another twelve feet of easy rock work, mingled with small patches of coarse shale, brought us to the saddle, where the real climb commences. When we reached it we were surprised to find that Ringrose, Hungabee and all the other mountains west of Paradise Valley were now veiled in mist, in fact, everything gave evidence of an approaching snowstorm. Determined to reach the top however, before conditions became impossible, we lost no time in traversing the arête to the right and up through the couloir to the first really difficult wall, which is probably four hundred feet from the saddle. Here we roped and, leaving our ice picks behind us, commenced scaling a practically perpendicular wall of some fifty or sixty feet, Aemmer leading, Feuz second and I in the rear. It was evident that only one man must move at a time if the

others were to be of any assistance should an accident occur. We were using a ninety-foot rope, so had thirty feet between us and when at closer intervals the slack was always taken up.

It appeared from down the couloir that this wall might be avoided by traversing a narrow ledge which led around to the right into a chimney, and after the guides debated the matter in their own language (much to my annoyance), I saw they intended to try it, for Rudolph set out gingerly along the ledge, kicking off, as he went, the small fragments of shale which had fallen down from the overhanging cliffs above. The thirty feet of rope was barely long enough to take him to a spot sufficiently large to secure a good footing, so Edward had to go along the ledge some distance to let Rudolph off at the other end. It was a nice piece of work and a slip on the part of either of the guides meant disaster to us all, for neither of them, with the meagre foothold and handhold they had, would have been able to hold the other, and while I was in a place of perfect safety, I would not have been able to take the weight of a fall of two men. However, nothing happened, but I was glad to hear Edward say "Come on," for I knew Rudolph had landed safely round the ledge into the chimney. It made little difference whether I fell off or not, for I knew my miserable little hundred and thirty-five pounds would have no effect upon a couple of "huskies" like these fellows, and though I might dangle down the side of the precipice, twenty feet or so, I knew they would soon pull me up. I made the grade, however, and the first thrill was over.

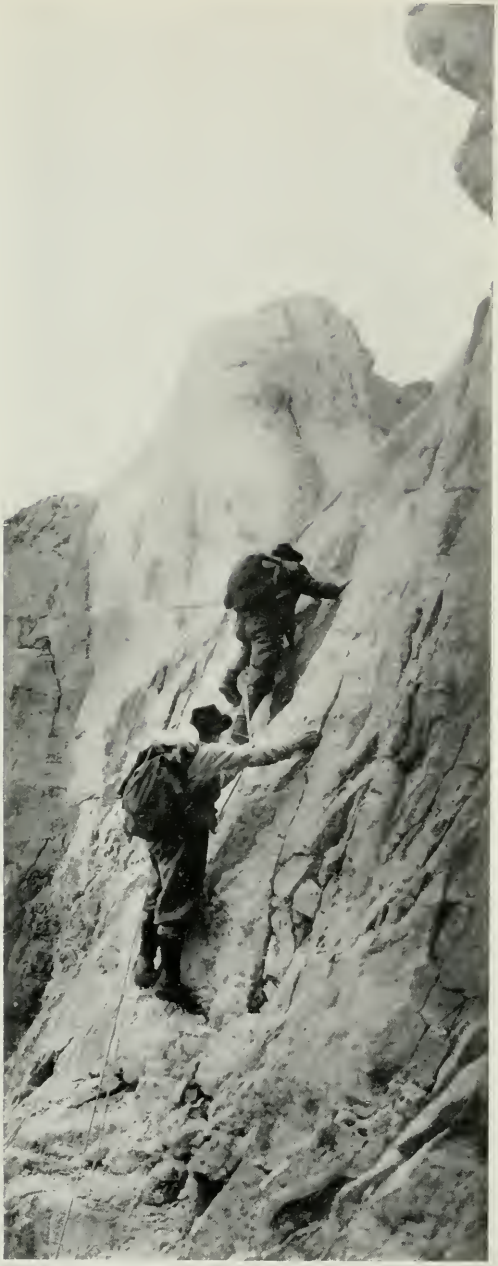
After working our way up the chimney a little way, another conversation took place equally as unintelligible to me as the last and when I heard Aemmer say "No good," I had vision of the ledge again. By the time we had explored the chimney and found it impossible to ascend and had traversed the ledge twice, we found

ourselves gazing up the slippery black wall once more, with half an hour of valuable time gone. There was nothing to do but get up, so very cautiously testing each hand and toe hold before placing his weight, Aemmer managed to make a tiny ledge twenty-five feet from the top. It was comparatively easy for Feuz and myself to reach this point with the assistance of the rope; the remaining twenty feet to the top of the wall was easier, and we soon found ourselves climbing over good rock for the next three hundred feet to the bottom of the chimney where Dr. Hickson and my two guides roped off eight years ago and which had proved too much for all previous expeditions. The altitude here is probably 9,750 feet, and we were now on the western face of the mountain, exposed to a strong wind, accompanied by light snow flurries.

As we sat down to take off our heavy climbing boots, I knew the real climb was on. Aemmer replaced his boots with light ones of his own construction, having twine soles; Feuz wore ordinary rubber-soled tennis shoes, while I surprised them by producing a pair of old felt boots, which I found to grip all conditions of rock splendidly, and which both guides agreed were well adapted for the purpose of climbing chimney and perpendicular rock faces.

Before starting again, we took a few minutes for lunch and, feeling quite refreshed, started up the chimney. To me it looked impossible, but for the greater part of the way the work mostly rested on the guides, who, with a knee in a small crack here and an elbow in another somewhere else, kept working up till they reached a small ledge just large enough to hold the three of us. I managed to reach the ledge without the assistance of the rope, but am doubtful if I would have tried to do so had I not been fastened to it.

From the ledge it was necessary to cross the chimney and the only hold was a crack eight inches wide, about



Photo, L. S. Crosby

FIRST ROCK WALL, PINNACLE MT.

six feet above the ledge on the opposite side. To reach this, it was necessary for Rudolph to get straight up on Edward's shoulders and reach out across the gap for the crack—so far so good. Rudolph, thinking he could scale the wall by the use of his left arm and left leg in the crack, took his weight off Edward and started to perform a new feat in the annals of mountain climbing. Had the crack been narrower, no doubt he would have succeeded, but the strain of holding one's whole body with the leg in a twisted position while the arm is raised a few inches, and then holding the arm in a similar position until the leg is raised a little, cannot be kept up very long. Unable to find a place in which to jam his leg or arm and take the weight, he finally reached a position where it was impossible to get either up or down, so I volunteered to stand on Edward's shoulders, and lean across the chimney so that Rudolph could get out of his precarious position and on to my shoulders.

It was necessary for me to assume a stooping position so that he could reach me, and when the full weight came upon me, I felt as if I could never straighten up with the load. To make matters worse, I could feel Edward trembling under the weight of the two of us, so, mustering all the strength I had, I slowly straightened up, in order that Rudolph could get a small hand-hold and take off a little weight. This hand-hold was not sufficient to pull up by, however, and it was only by crossing my arms over my head and thereby giving him an additional ten inches that he was able to secure a second hand-hold, by which he managed to pull himself up to the rock from where they had roped off on the first ascent. Rudolph soon fastened one of the ropes he had brought and lowered it to the ledge, which I managed to reach again without mishap. With one rope to climb up and another around the body held by Rudolph at the top, there was no further danger.

The only accident met with occurred when we were in

form of a human ladder across the chimney and Rudolph had only one hand-hold. A rock, about the size of one's head, came tumbling down the chimney at considerable speed. Rudolph saw it coming straight for him and shouted a warning, but we dare not move, and although he saw that it was going to strike his hand, he was afraid to move it for fear I could not bear his whole weight any longer, so he stood motionless and let it hit him square on the back of his hand. It took considerable of his skin down the mountain with it, but little things like that do not damp the spirits of the true mountaineer.

It was an easy scramble up the remaining two hundred and sixty feet to the top, which we reached at 1.10 p.m. We spent but a few minutes there, as the sky was now totally overcast and the ever-increasing wind began to drive the falling snow into our faces, making it anything but pleasant.

The guides had come prepared to spend some time in making the roping off places a little more secure and to leave two good stout ropes hanging on the mountain, one at the chimney near the top and the other over the wall near the saddle; the object being, that in future it would be less dangerous to climbing parties and possible to make the ascent accompanied by one guide in place of two as hitherto.

When we arrived at the narrow ledge just above the chimney, the guides went down about 20 feet to the rock to which they had fastened the roping-off-loop on the descent with Dr. Hickson. It is remarkable to note that this loop was in almost perfect condition after seven years' exposure and doubtless would have served the purpose for which it was first used for many more years. The guides, however, deemed it advisable to leave it more durable, so they proceeded to affix the twelve feet of half inch wire cable which they had brought for the purpose. Although the cable seemed to have a good hold round the rock, Edward thought it best to put in a spike,

so with drill and hammer set to work to make the hole. This was a very difficult task at first, as he was obliged to stand on a three-inch ledge and reach out the full length of his arm to the point where the spike was to go; when the hole reached a depth of an inch or so, it was easier, as the drill acted as a hand-hold. Rudolph relieved Edward when they thought the work was half done and it was here that the most amusing incident of the expedition occurred—at least for me. Rudolph was pounding away most energetically and had just remarked that he thought the hole was deep enough, when all of a sudden the top cracked off the rock to the depth of the hole—our neighborhood was no place for a minister's son, if he understood Swiss. I had a bird's-eye-view of the whole performance from the ledge upon which I had curled myself up to weather the storm while they did the work. Anger soon turned to mirth and we all had a hearty laugh.

Half an hour had been spent drilling this hole and the guides did not propose making a new one in rock which would split up like this, so chiselled out the grooves round the sides and back of the rock. The ends of the cable were now spliced together, hung over the rock into the grooves and secured by wooden wedges and small stones; the heavy rope we proposed leaving was now secured to the loop and thrown down along side of the chimney. I was anxious to take a photo of this spot, so went down first. With one rope to slide down and another around the waist, I experienced little difficulty reaching the ledge below. I found keeping the body rigid, placing the feet out against the walls, and maintaining a position at right angle to the mountain to be better than sliding down with legs twisted around the rope. In my opinion, the former position is less apt to result in marked knees, knuckles and elbows.

I am a little disappointed with the accompanying photo of the chimney, but the light was bad. It will

serve, however, to illustrate the character of the rock. Rudolph can be seen near the top, while Edward is about 30 feet from the bottom.

When all had come down safely, we unroped, donned our heavy climbing boots, coats, etc., and, after finishing our grub-stake, made off at a good pace for the saddle. We soon reached the rock wall and, after choosing a suitable rock from which to hang our other extra rope, we went through the performance of roping off in short order. The lower end was made fast to prevent fraying by tying to a wedge driven into a small crack. We picked up our ice axes, which on this climb were of no more use to us than as many walking sticks. The saddle was gained in a few minutes, and nothing remained but to run down the shale slope to the snow and then glissade to the valley.

We reached Moraine Lake just at 6 p.m. and were given a hearty welcome by the campers and, after partaking of some of the excellent supper, took our leave for Lake Louise in the carriage which had returned for us.

POSITION OF CLIMBERS IN CHIMNEY

Photo, L. S. Crosby

THE CHIMNEY, PINNACLE MT.

THE FIRST ASCENT OF MOUNT LOUIS

By A. H. MacCarthy

The scenery around Banff, as viewed from the car window, does not reveal to one the exceptionally fine rock climbs that are near at hand and easily accessible from the Alpine Club House as a base. It was not until after a visit to the Club encampment on Healy Creek in 1916 that I had an opportunity to make a trip into the Forty Mile Creek Region back of Mount Edith to see the two rock towers lying northwest of it.

In company with Dr. and Mrs. W. E. Stone, Mrs. MacCarthy and I left the Club House at 6 a.m. on July 19th, under the guidance of Conrad Kain, for a day's picnic "to view the scenery," as one of the party guardedly announced, for we had heard of the formidable character of these towers and, as it was early in the season and none of us felt in proper condition to hazard the strain of a first class climb, we were content to consider it simply a trip of exploration. However, the exhilaration of three hours in the saddle at a brisk pace over a good road and a fine trail, winding up through the pine and balsam to the summit of the pass between Mounts Edith and Norquay, and the first view of the towers so inspired us that we immediately decided that we must go to the base of Mount Louis, the first tower.

The formation of this tower is very interesting, for it consists of thick strata of red limestone on edge, the line of stratification running north and south, and on those sides the massif is grooved with many couloirs and chimneys; above the massif a final tower rises for about four hundred feet, consisting of great slabs somewhat separated from each other, like the leaves of a partially-opened book and presenting a vertical face on the east

side and deep cracks on the north and south sides between the successive leaves.

The second tower, unnamed, is more regular in shape and from the east resembles a massive turret with innumerable vertical grooves cutting its face from top to bottom and portholes dotted here and there at various levels.

We followed the trail down towards Forty Mile Creek for about a mile and then led our ponies over the ridges through burnt and fallen timber for another mile until further progress with them was impossible. Here they were tethered for the day and we continued over the hog-backs to the summit of the green-covered shoulder at the northeast base of Louis, the barometer showing 7,000 feet elevation. The hard going over the innumerable ridges and the final climb up the shoulder made a second breakfast most welcome, and soon the good food and warm sunshine threw all of us into that dreamy state of delicious indolence when any movement is an effort and one is content to lie and gaze at the figures and images outlined by the cracks on the rock walls and to work out possible lines of ascent without trying them. And thus we probably would have spent the day had not Conrad's audacious look through massive vertical slabs, and bold assertion that my suggested route up a chimney showing at the base on the north side of the tower would either pinch or terminate in an impossible overhang, broken the spell for me, and I immediately set out to explore the route and prove his mistake.

At the same time, Conrad began a traverse along the ledges on the east side of the mountain and it took me over an hour of strenuous climbing to rejoin him beyond the couloir on the east face and admit that he actually could see through solid rock; for my chimney, after running up for several hundred feet, terminated with smooth side walls and a smooth overhanging cliff at the top, with apparently no outlet from this *cul-de-sac*.

At twelve o'clock we continued up the ledges on the south side of the couloir above the snow patches until we reached the last horizontal ledge or terrace and here we cached our ice axes. This terrace carried us toward Mount Edith, to the base of the red, vertical slab south of the couloir, and there broke off abruptly with a rough face dropping for about one hundred feet and seemed to terminate in a sheer drop of several hundred feet to the pass between Edith and Louis. While Conrad made a study of the section along the south edge of the slab, I tried the broken ledges to the north and worked up for about fifty feet until I came to a blank wall with no way around it, and in descending was forcibly impressed with the fact that an ascent on vertical stretches with narrow hand and foot holds is far easier than a descent. Upon rejoining Conrad at the base of the slab, I found him gazing at the narrow, vertical face-crack on the slab, and unlacing his boots. The prospect did not please me at all, and, in order to save him further trouble and perhaps to save my face, I emphatically said "No," and the boots were laced up again. The south side of the slab had proven as impossible as the north side and the two-inch crack seemed to offer the only possible line; but the day was early and I was in no condition for thirty feet of finger and toe exercise such as this crack would have necessitated.

The chimney over the north branch of the east face couloir pinched at the top and showed a decided overhang for about ten feet, while the south branch chimney, although not visible throughout its entire length, seemed to end in the same way, and both of them carried only to the base of the first leaf of slabs that form the summit of the mountain, with no indication of what lay beyond it; so we decided to work down the south side of our terrace and, at a point about twenty feet above the vertical cliffs, worked a traverse along narrow ledges and up two short, broken chimneys that finally carried us

over a rib into the steep cut that is a prolongation of the crack between the second and third leaves of the summit formation.

We were now on the south side of the mountain, with the walls just below us dropping sheer to the pass, while, a short distance above, a vertical face stepped the bed of the cut up between two smooth side walls, thus blocking its ascent. From near the bottom of this cut we worked up and down over rock faces and one long, diagonal angle-crack between a cliff of the mountain side and an outlying rib, and landed on the edge of the lower stretch of the third leaf of the summit mass. From this point we had a clear view up a narrow couloir, of which stretches were almost chimneys, to the top ledges of the massif below the final tower. Fortunately, our position on the rib was forty feet or more above the abrupt ending of this couloir over the cliffs, so we roped down from a projecting rock about twenty feet into the bottom of it. This point we reached at 2.30 p.m. and the barometer read 7,800 feet.

The couloirs and chimneys from here to the base of the final tower are narrow and the faces and sides are rough, making the ascent safe but exhausting, as many of the stretches are very steep. The ascent of five hundred feet to the terrace at the summit of the massif took forty-five minutes. Upon reaching the terrace, we rested and gazed at a most interesting prospect; running up between the third leaf and the main tower was a steep pitch and then a black chimney, apparently going to the very summit, no more than a crack in the face of the cliff, with two perfectly straight walls and the inner face so deep inside the cliff that it would not be seen; a truly wonderful chimney to delight the most exacting climber. With such limited space to work in, we hastily cached our ruck-sacks and rope and made for the final test, for it was apparent that if the crack above was wide enough to admit our bodies we were certain to reach the summit,

but if it should prove too narrow to enter, then we should have to try one of the nearly vertical edges, with a leg and arm inside for pressure holds and the other two members on the face of the cliff to take advantage of whatever irregularities were found to offer a hold and footing, a very doubtful expedient, owing to the great height to go.

Crossing the terrace, we found the first stretch of seventy-five feet a steep scoop with rough surface and easy going. This carried us directly into the chimney, which proved just wide enough to admit my shoulders with a slight squeeze. We walked into it for about ten feet to the back face, which went up at a seventy-degree pitch, and looking up we saw perfectly smooth walls on each side and a narrow strip of blue sky far above, the back face continuing from ten to fifteen feet inside the outer edges of the crack. Here was a real chimney, the kind one speculates about but the like of which I never before had seen; with side walls so smooth that they afforded no hold or footing at all, the inner face so covered with ice that only an occasional footing was available, and the climb so high that the all-important question was whether or not one's strength would hold out until the top was reached. However, the chances for success inside the crack were so great over the chances on a route at the outer edge, that we did not stop to reckon with our wind or strength, but wedged ourselves in between the walls and climbed up the inner face as far as it afforded us a footing on the rock pile at the bottom, and then began with pressure holds, first pressing hard with the arms and shoulders and with the palms of the hands flat against the walls near the waist line until the knees were drawn up as far as possible, then with edge nails scraping the sides and a pressure with the knees and thighs, a hold was afforded long enough to raise the body for a fresh pressure with shoulders and arms. At one point the walls gradually pinched until, for about

ten feet, it was necessary to turn the body sideways and, as the space was too narrow to allow the knees to be used, this stretch was doubly hard. Thus we climbed, with an occasional interval of rest whenever the inner face presented a footing, until we reached the sky itself, only to find that we still had two wide chimney-stretches of about 125 feet to the final slab on top. Clouds were now settling over the peak and a light drizzle began, which warned us to make haste, but a hundred feet of this sort of climbing had told on us heavily so we rested, and, gazing into our black well, we speculated as to how our hands and elbows would fare when braking down such a stretch, for, although the body had to be lifted when ascending, the danger of a fall was slight so long as strength lasted, while on the descent we realized that when the body was in motion, a slip, or too much speed, would prove disastrous.

The drizzle quickly turned to sleet and this drove us hastily up the two remaining chimney stretches, the first narrow and deep for about fifty feet, and the second of seventy-five feet, with wide, flaring sides, until it ended at the base of low, broken cliffs at the summit, which we reached at 3.50 p.m., the barometer reading 8650 feet.

Conrad's yodel announcing our success was a welcome signal to our friends below, for, after following our course with a glass until we disappeared on the south side of the mountain, they lost sight of us and immediately worked around over the pass to the glacier northwest of Edith, when they again were able to follow much of our route until we reached the base of the final tower, which appeared from below to offer no possible line of ascent, as the crack looked to be impracticable. Our sudden appearance at the summit was a great surprise to them.

The wind was cold and the snow-squall rapidly increased, so we spent little time examining the formation of the other sides of the mountain. From the summit we

Photo, W. E. Stone

MT. LOUIS FROM SOUTHEAST

could see no route that seemed at all inviting and decided it safer, under the circumstances, to retrace our steps. We built a small cairn and deposited a record in a tobacco box, and began the descent at 4.10 p.m., well aware that the hardest part of the climb lay before us, for, with tired muscles and scratches and bruises all over our bodies, the hours of constant tension to avoid one careless move or mis-step and to touch no loose rocks was certain to tax us to the limit of endurance.

For almost the entire length of the couloirs and wide chimneys we faced out and heeled down, pressing the side walls with the palms of our hands that seemed to strike every sharp point or edge along the route. Leather gloves would have saved us many cuts, but there was need for every finger nail in many stretches, so the flesh had to make its sacrifice and bear its pain.

The walls of the narrow chimney were now dripping with water and made its descent very slow, for the long, nearly straight drop to a mass of sharp rock at the bottom was constantly before our eyes to warn us of the dangers of an uncertain movement. Under the same conditions, had this chimney been a few inches wider, such a descent would have been almost impossible, for it still would have been too narrow for back and knee work, while the increased width would have made too great a space to cover by chest expansion for arm pressure.

Great care was necessary on Conrad's part to retrace our steps as nearly as possible, for it was apparent during the climb up that many cuts and ribs offered a line of ascent for long stretches, only to end in an impasse, and for us to come down on any one of such routes would mean a climb up for another start. At 5.30 we reached the point where, on the ascent, we had roped down from a rib into the couloir, and here considerable time was required to throw a loop of the rope from such a confined space over the projecting rock above. After many trials, it finally was accomplished and we then

began the diagonal traverse above the cliffs on the Edith Pass side. This stretch without doubt was the most dangerous section of the whole climb and especially for the descent. The route was irregular and in most places ran along narrow ledges, with scanty finger holds in small cracks and over rib ends, and with sheer drops everywhere along the line to the pass below. We, therefore, double roped along and down from every point which afforded even the slightest anchorage, and, although the rope was not depended upon for assistance, we were grateful for the assurance it gave in case of actual need. This stretch and while roping down into the couloir were the only times when the rope was used on the climb.

At six o'clock we reached the base of the red slab on the east face, and, picking up our ice axes at the north end of the ledge, made rapid progress directly down the east couloir, reaching the high snow patches at 6.40 and the scree slopes below at 7.45 p.m. Our party lost sight of us when the descent began and, late in the afternoon, were filled with apprehension when they noticed on the big snow-patch below the east couloir two dark spots that were not there in the morning; but Conrad's mountain yell from the scree slope belied the suggestion of disaster and we made off in a straight line for the meadows where the ponies had been taken. Upon reaching the edge of the timber east of Mt. Edith, we stopped and looked back at our mountain, which towered up magnificently in the dusk, and Conrad spoke volumes when he said, "Ye gods, Mr. MacCarthy, just look at that; they never will believe we climbed it."

SCIENTIFIC SECTION

VEGETATION DISTRIBUTION IN THE ROCKY MOUNTAINS PARK

By Francis J. Lewis

The study of the vegetation of a district may be approached from several different points of view. The systematist may compile a list of species existing in a region with an indication of their relative abundance, and this is extremely useful work of fundamental importance in the study of vegetation from any point of view. At the same time such work gives little information about the distribution of the vegetation and its grouping into definite units or associations, according to the influence of external factors.

Ecology—a comparatively new science, barely twenty years old—is concerned in one of its aspects with the recognition of vegetation units, their inter-relationship, and the effect of soil and climatic factors upon their distribution. Another important field of Ecology is concerned with the succession of different forms of vegetation; for as sunlight and shade, mist and rain sweep across a landscape, so different forms of vegetation clothe the mountain summits, slopes and valleys at successive periods.

During the last fifteen years, a great number of investigations have been carried out along these lines in nearly every country in Europe, in New Zealand, Australia and many of our Tropical Possessions and in the United States.

Several different kinds of vegetation units can be recognized. Formations may be either climatic or

edaphic. In the first we deal with broad, general types of vegetation obviously determined by widespread climatic features, such as the primary divisions of the plant-covering into woodland, grassland and desert. These divisions are of use in attaining a general view of the vegetation of a continent from a purely climatic aspect. Edaphic formations are smaller units determined by more local climatic and soil conditions, the concept of an edaphic formation being physical rather than floristic. Thus, it is permissible to speak of an oxylophyte formation, meaning thereby a set of plants covering acid humus soil without special reference to the species, although the vegetation in such habitats possesses certain common physiological features in all parts of the world.

Formations are resolved into associations which may be described as communities of plants growing under similar conditions. These are usually quite as definite and as easily recognizable as the different kinds of rock, and the boundaries may be laid down upon a map with the same precision with which the geologist maps different rock formations. Vegetation maps give the best indication of the economic possibilities of a country and are the most satisfactory basis for comparing the vegetation of different regions, one with another. To the mountaineer, they afford an excellent guide to the best route in approaching or making a climb, and the delineation of plant associations on a well contoured map enables anyone used to map reading to form a mental picture of scenery in a way approached by no other method. It was with a view to studying some of the plant associations of the Eastern Rockies that the writer began a survey of the Banff District in 1916. The area chosen extends from near Canmore on the C.P.R. in the east to Castle Mountain in the west, and Simpson Pass in the south to Lake Minnewanka in the north, an area of about 216 square miles.

The following account of the vegetation is only tentative, as another two years' work will be necessary to complete the map and study the many special problems in connection with plant successions.

It is hardly necessary to say anything about the general topography of the district, as this is familiar, to some extent at any rate, to all members of the Club.

The following forms of vegetation are well represented:

(*a*) Forests,
(*b*) Heaths,
(*c*) Grasslands,
(*d*) Alpine mat-herbage and Alpine mat-grassland,
(*e*) *Menziesia* association,
(*f*) Moraine vegetation and screes.

(*a*) Forests. Three types of trees dominate the forest land:

(1) *Pinus contorta Murrayana,**
(2) *Picea Canadensis,*
(3) *Picea Engelmannii.*

(1) *Pinus contorta* is chiefly confined to the valleys and lower slopes, seldom occurring as forest above 6,500 feet. This tree gives the characteristic appearance to the forest land far more than either of the other two species. *Pinus* forest is especially well developed in the Bow Valley westward from Canmore, in the Spray Valley, and thence branching up the larger tributary valleys, such as Healy and Brewster Creeks.

The foliage permits a greater entrance of light than the other forest trees, and thus a more abundant undergrowth occurs, characterized by such shrubs as *Shepherdia Canadensis, Menziesia glabella,* and herbaceous plants, *Arctostaphylos uva-ursi, Anemone multifida, Zygadenus chloranthus, Listera convallarioides, Calypso bulbosa, Habenaria obtusata.* The lower slopes in many cases

* The writer is indebted to J. M. Macoun, Esq., Acting Head of the Division of Biology, Department of Mines, for help in the determination of some of the plants mentioned in this paper. The nomenclature is that adopted by the Vienna Congress 1905.

have been burnt over and the second growth pine varies in age from fifteen to twenty-five years. The extremely low temperatures of the winter of 1915-16 caused the frosting of large areas of pine, the whole foliage being killed on the slopes of Mts. Inglismaldie and Rundle at about 6,500 feet to 6,000 feet. The damage appears to be more severe on slopes with a western exposure than elsewhere and *Pinus* on slopes in the Yellowhead District appears to have suffered in the same way.

(2) *Picea Canadensis* forest occupies three entirely different habitats and in each case is accompanied by a distinct ground flora. In the Bow Valley, westward of Banff, it occupies marshy flats associated with willows and sedges.

Between 4,500 feet and 7,000 feet it covers rocky slopes almost bare of soil and clothes the steep sides of the smaller lateral valleys opening out of the Bow Valley into the Sawback Range, and often occurs as a narrow band above the *Pinus* forest.

The most characteristic habitat is that of the floors of some of the deep valleys, such as Healy Creek and Mount Edith Trail. Here, the spruce grows in close canopy, permitting little light to reach the undergrowth which is sparse and consists chiefly of a thick carpet of moss (*Hypnum crista-castrensis* L.) with *Linnaea borealis* var. *americana, Moneses uniflora, Clematis columbiana, Zygadenus chloranthus.*

(3) *Picea Engelmannii* only forms forest near the tree limit (about 7,000 feet) and does not cover any extensive areas in the district. It is clearly distinguishable from the white spruce by its heavier and more massive outline and can be recognized in a good light, at a great distance, by the yellowish bronze color of the foliage, contrasting with the dark green of the white spruce. It is common at the tree limit on Mts. Inglismaldie, Cascade, Norquay and the Bourgeau Range, and is found best developed on slopes facing

north. Although burning has occurred extensively in most of the pine and white spruce forests, there is no evidence of fires having extended into any of the Engelmann spruce areas. The soil always consists of a fairly deep humus, with snow patches lingering on until well into July, and this may account for the forest fires having failed to penetrate into these areas.

Two other trees, *Larix Lyallii* and *Abies lasiocarpa* (balsam fir) are always found associated with the spruce and there appears to be some evidence that the balsam fir is tending to replace Engelmann spruce, as seedlings of the latter are common, whilst most of the Engelmann spruce is of mature age.

The region of the tree limit is one of considerable interest, as it is here that a number of herbaceous plants disappear and a new flora makes its appearance.

Some measurements of the rate of growth of different species of trees may be of interest as showing the variety of conditions existing at about 7,000 feet.

Species	Locality	Age Years	No. of Rings per inch
Abies lasiocarpa	E. side Cascade Mt... 7,100 feet	167	40
Abies lasiocarpa	E. side Cascade Mt... 7,100 feet	34	30
Larix Lyallii	E. slopes Cascade Mt. 7,100 feet	37	32
Picea Engelmannii	W. slopes Cascade Mt. 7,100 feet	65	32
Picea Engelmannii	W. slopes Cascade Mt. 7,100 feet	280	40
Pinus albicaulis	Summit Sulphur Mt..	272	145

(*b*) Heaths are associated with the more open Engelmann spruce forests at about 6,800 feet to 7,200 feet, often extending for some distance outside the shade

of the trees. In August these heaths (Fig. 1) are covered with the white bell flowers of *Cassiope mertensiana.* This is always the dominant plant and associated with it are *Phyllodoce empetriformis, P. glanduliflora, Mitella breweri, Viola orbiculata, Pedicularis bracteosa, Saxifraga lyallii.* At Simpson Pass (7,200 feet) deep snow-patches often lie until late in August, and in such places an interesting flora is met with, known as the snow-patch flora. This has been studied in some detail in the European Alps. Snow-patches are shallow basins or flat spots where the snow remains lying until late summer, and are characterized by a soil of black, wet humus. As the snow recedes a characteristic flora appears, the following plants being most noticeable: *Erythronium grandiflorum* var. *parviflorum, Anemone occidentalis, Ranunculus eschscholtzii Valeriana sitchensis, Antennaria racemosa, Carex scirpoidea* var. *stenochlaena.* Some of these plants, notably *Erythronium* (snow lily) can often be seen in flower at the edge of the snow-banks in August.

(*c*) Grasslands. Many of the lower slopes throughout the district are covered with a dry type of grassland and are the most unattractive regions in the district. The most characteristic plants are grasses, Leguminoseae, and scattered shrubs of *Shepherdia* and *Rosa, Castilleja lancifolia, Sedum stenopetalum.* Most of these slopes occur between 4,500 feet and 6,000 feet, although grassland of this type occupies burnt-pine areas up to 6,700 feet on the western slopes of Cascade Mountain.

(*d*) No vegetation in the district stands out with greater distinction than the green, herbaceous areas occurring at altitudes between 6,300 feet and 7,500 feet. The vivid green forms a beautiful contrast with the gaunt outline of burnt timber, the sombre colour of the spruce area, or the bare, gray rock of the upper slopes, giving the effect of a flower garden in the wilderness. The

boundaries are marked with extraordinary sharpness. The term alpine meadow as applied to this type of vegetation is rather a misnomer. Meadow, from the ecologist's point of view, is a community of tall long-stemmed grasses with a mixture of perennial herbs, and does not resemble these green areas either in the Rockies or the European Alps. In reality two types can be recognized: Mat-grassland and Mat-herbage. The former is characterized by an abundance of grasses which develop late in the season, whilst in the earlier part of the summer (Fig. 2) the ground is carpeted with flowers. The latter is dominated by herbaceous perennials with occasional grasses. The former is luxuriant in growth and often attains a greater height than one foot, whilst in the latter the plants are smaller, usually of the rosette type, and cover the ground much more sparsely. Figures 2 and 3 show the great difference in appearance of these two types in August.

The floristic differences are indicated by the following brief list of plants: *Mat-grassland — Anemone patens, Delphinium nelsoni, Aquilegia formosa* var. *flavescens, Tellima parviflora, Heuchera glabella, Myosotis alpestris, Rhinanthus crista-galli, Castilleja hispida, Zygadenus venenosus, Poa crocata, Koeleria cristata, Elymus dasystachys. Mat-herbage — Dryas octopetala, Potentilla glaucophylla, Sibbaldia procumbens, Saxifraga adscendens, S. caespitosa, S. nivalis, Poa alpina, Festuca ovina* var. *brachyphylla.*

Perhaps the best example of mat-herbage is on the rounded summit of a spur of Mt. Inglismaldie at 7,400 feet, illustrated in Fig. 3. It would be difficult to imagine anything more beautiful than the mingling of the vivid blue, yellow and white of the *Myosotis, Potentilla, Dryas* and *Saxifrage.*

All the areas of mat-grassland face south. An excellent illustration of this, visible from the windows of the Alpine Clubhouse at Banff, occurs on Mt. Norquay.

The small ravines on the eastern face of Norquay have flanks with an inclination of about 35 deg. The flanks facing south form a vivid green strip down the mountain side from about 6,800 feet to 5,600 feet, whilst the flanks facing north are covered with a totally different vegetation of *Menziesia glabella* with many other shrubs. This striking feature can be seen in many places on the Vermilion Range and the Bourgeau Range, and gives an excellent illustration of the effect of aspect causing differences in light, temperature and soil.

(*e*) *Menziesia* association extends in an unbroken zone from the eastern side of Mt. Norquay along the northward-facing slopes of the Sawback Range above Forty Mile Creek, from 4,600 feet to 6,900 feet.

Nearly the whole area has been burnt over, and fallen trunks of spruce and pine litter the ground. The dominant is *Menziesia glabella,* with *Rhododendron albiflorum, Alnus tenuifolia, Salix glaucops, Ledum groenlandicum* and a herbaceous vegetation of *Vaccinium scoparium, Pedicularis groenlandicum, Arctostaphylos uva-ursi* with many mosses and lichens. This forms by far the most impenetrable vegetation of the district. It occurs on slopes of 30 deg. to 45 deg. inclination, and is best developed where it faces north and on deep, wet humus. There is reason to suppose that this is a characteristic vegetation in the Selkirks, attaining there a far greater importance than in the Rockies.

(*f*) The colonization of old moraines and rock-slides, and the successions occurring in these situations with increasing age, present many problems of extreme interest to the botanist and geologist. Throughout the district at about 7,000 to 8,000 feet there are fine examples of cirques with series of moraines deposited during the retreat of the glaciers which formerly occupied the cirques. The successive moraines are covered with entirely different plant communities. The oldest moraines are covered with a considerable depth of

Photo, F. J. Lewis Figure 1

ENGELMANN SPRUCE SLOPE WITH CASSIOPE ASSOCIATION
6900 ft. on North Slopes of Mt. Louis

Photo, F. J. Lewis Figure 2

ALPINE MAT—GRASSLAND
6500 ft. on Mt. Norquay

Photo, F. J. Lewis Figure 3

ALPINE MAT—HERBAGE
7400 ft. on Mt. Inglismaldie

Photo, F. J. Lewis Figure 4

OLDEST TYPE OF MORAINE VEGETATION; DOMINATED BY PICEA ENGELMANNII AND CASSIOPE

7100 ft. on Cascade Mt.

Photo, F. J. Lewis Figure 5

YOUNG TYPE OF MORAINE VEGETATION; DOMINATED BY SALIX NIVALIS AND DRYAS OCTOPETALA

7100 ft. on West Face of Cascade Mt.

humus and support an open forest of *Picea Engelmannii* with an undergrowth dominated by *Cassiope.* This type is illustrated in Fig. 4. The trees average about three hundred years in age.

The youngest moraines are bare of humus and are sparsely covered with a small creeping willow *Salix nivalis, Dryas octopetala, Lychnis apetala, Poa alpina.* These are the early pioneers of the rocky waste, often driven back by snow-slide and rock fall, yet ever advancing, covering the bare rock with a layer of humus and preparing the way for more stable forms of vegetation.

FAUNAS OF CANADA

By P. A. Taverner

(*Reproduced from The Canada Year Book*, 1915)

Whether the fauna of the western hemisphere was derived from that of the eastern, or *vice versa*, as is contended by various authorities, there is a clear relationship between them, and one of these contentions is certainly true. Geological evidence shows that in previous ages the northern circumpolar life was even more homogeneous than to-day, and types now found in but one of the great continental circumpolar divisions were once common to both. Old and now submerged land connections between the continents have been postulated both from zoological and geological evidence, and a more or less complete continuity of land throughout the northern hemisphere, in former times, must be acknowledged before present American biotal conditions can be thoroughly understood. That this connection was in the far north and in what is now Arctic or sub-Arctic climate did not prohibit a continual interchange of warmth-loving species, for the presence of coal in very high latitudes points to milder, if not tropical or subtropical, conditions where now we find perpetual snow and ice. We must, therefore, conceive of a pre-glacial time when tree-ferns and other luxuriant coal-producing forests occupied extreme northern lands, and such species as elephants, horses and other warmth-loving species could spread from one continent to the other.

At this time the entire northern hemisphere was probably peopled by an essentially similar population developing along approximately parallel lines through a more or less free interchange of individuals. These conditions, however, were interrupted by the breaking

down of the land connecting the continental areas and the occurrence of the glacial epochs,* when solid ice covered a large part of the northern hemisphere in North America south to below the Great Lakes. Probably this resulted, over the whole of Canada, in conditions closely approximated to those at present found in Greenland, and a temperate climate did not occur short of the Gulf States. Though these Arctic conditions prevailed gradually, they none the less inevitably blotted out the original population of the sub-tropical north.

The species that were of too inflexible a nature to adapt themselves to new conditions, or forsake their ancestral habitats, became extinct and perished entirely; some more adaptable, while they retreated before the face of the oncoming ice, became hardier and capable of living in temperate or sub-Arctic climates, and others more easily moved were driven far south, perhaps into South America, where in competition with forms already resident they either triumphed at their expense or succumbed, as the case might be. The survivors under new and various influences evolved into numerous new forms and differentiations more or less distinct from the original stock. These conditions prevailed for what can be historically regarded as great periods of time in the process of which an originally continuous and fairly homogeneous world population became a number of isolated units, differentiating along independent and often divergent lines. Some forms in each hemisphere disappeared, specializations of old ones arose, and the bases of the peculiarly characteristic Faunas of the two great continental areas were laid.

On the gradual retreat of the great ice barrier to intercontinental communication at the beginning of the present geological era, many descendants of the species

*Though here treated for convenience and clearness as but one single occurrence, it should be borne in mind that the glacial epochs were composed of a number of advances and retreats, more or less complete, of the ice cap with various intervals between. This, however, does not seriously alter the zoological results here stated.

that had been driven south gradually returned, following as closely upon the edges of the withdrawing ice as their natures and requirements permitted. Some were satisfied with their acquired southern homes or were more able to retain them in competition with their neighbours; they remained and probably became the ancestors of our present typically southern genera; but others seized with avidity upon the opportunity to occupy the gradually opening countries to the north, where competition was relaxed, and each succeeding spring advanced as far into them as climatic conditions permitted or competitive necessity demanded. Thus the north again became repopulated, but not with similar forms in both continents. On the contrary, each was supplied with forms made widely dissimilar through their enforced disconnected residence and divergent development.

During this re-occupation a number of interesting things happened. High elevation is comparable in the condition it originates to high latitudes, and mountains, even in the tropics, if high enough, are covered with perpetual snow. High mountain and Arctic conditions are similar and have little variety. Consequently, as the glacial ice withdrew first from the warmer lowlands, some species adapted to the colder climate, instead of following the retreat along the valley lines northward, merely climbed adjacent slopes and there found acceptable habitats. If the mountains were too low to retain their Arctic character in sufficient degree, those forms perished and were replaced by the next succeeding association until a permanent population was at last secured. If the elevation were greater the Arctic forms survived as isolated communities, and hence to-day we sometimes find Arctic forms on high tablelands and mountain ranges separated by many hundreds of miles of warm climate from their nearest allies.

It is obvious that these cold loving "relicts" of a

previous order should, in the natural state of things, have been the last to break their connection with the European or Asiatic continent and the first to come again into contact with their old allies. In some cases probably the very hardiest never completely lost touch with each other across the frozen wastes of separation. Arctic conditions are remarkably similar the world over, and these forms just clinging to the edge of habitability existed under like conditions and with far less stimulus to divergent progress than those in the warmer and more varied south. Evolutionary development is slower in the colder than the warm climates; generations are, on the average, slower of development and slight departures from a narrow successful groove are more ruthlessly weeded out; in fact there is less latitude between success and failure and fewer chances of departures from types being beneficial. All these reasons worked to the single end that the northern or Arctic fauna was during the glacial epoch much less differentiated in the eastern and western hemisphere, and to-day we find those of the northern areas are remarkably similar, and the circumpolar fauna is nearly identical throughout the circle. So in America we have a distribution of life closely related to European and Asiatic forms in the north, but gradually and regularly differentiating into peculiar and special forms as we proceed south.

Having considered the history and consequent relation of North American life to that of the world in general, we can take up the details of its distribution on our continent. The general trend of geographical distribution in Canada is from southeast to northwest. Ocean currents have much to do with this. Our east coast is chilled by the cold Arctic current coming directly down from the polar ice fields through Davis Strait, and the west coast is warmed by the grateful temperature of the great final sweep of the Japan Current. When we realize that the barren Labrador

coast of the Gulf of St. Lawrence is in almost the same latitude as southern British Columbia and is slightly south of the most southerly point of the British Isles, we can see what a great and fundamental influence these ocean currents have on the distribution of life upon our continent.

The general outline of zonal life distribution is well known. All are familiar with the fact that tropical life differs from temperate and from Arctic. Close study, however, shows that besides these broad and obvious associations are minor ones. Various attempts have been made to map them out, and perhaps the most successful and generally accepted one for our purposes is that by Dr. C. Hart Merriam. This divides North America into three regions, a Boreal, Austral and a Tropical one, with the first two each divided into three life zones: the Arctic, Hudsonian and Canadian zones for the Boreal Region and the Transition, and Upper and Lower Austral zones for the Austral Region. In Canada, we have five of these zones represented from the north: the Arctic, Hudsonian, Canadian, Transition and Upper Austral. These extend across the continent, roughly agreeing with latitude, but thrown out of regularity, as previously indicated, by local conditions and agreeing closely with the midsummer isotherms or temperature belts.

The Arctic Zone is the barren land of the far north, treeless and almost shrubless, and extends south to include all the north shore of the continent as well as the islands above. The distinctive land mammals of this zone are the Polar Bear, the Musk Ox, Barren Land Caribou, Arctic Fox, Arctic Hare and Lemming. Amongst the characteristic birds are Snow Buntings, Ptarmigan, Longspurs, Snowy Owl and the Gerfalcons. This is the great nesting ground for many of our waders and more northern ducks and geese. There are few residents, as most forms migrate in winter.

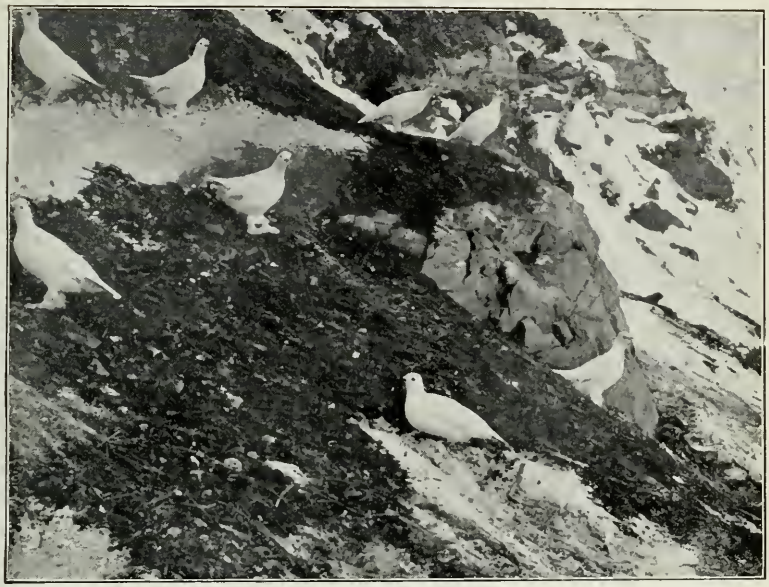
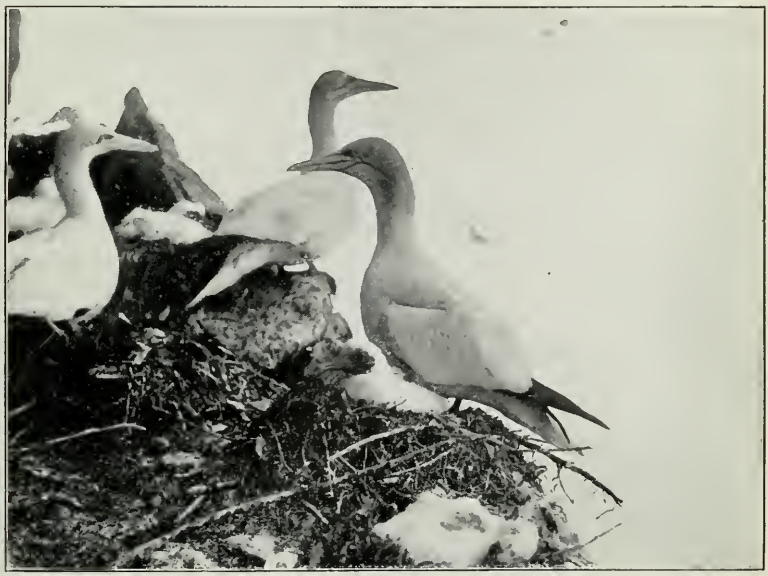


Figure 1

WILLOW PTARMIGAN IN THE MOUNTAINS OF BRITISH COLUMBIA



Photo, P. A. Taverner

Figure 2

GANNET OR SOLAN GOOSE

The Hudsonian Zone is the land of scrub forests, small stunted trees, mostly coniferous, and scattered dwarf willows and poplars. The southern boundary of this zone extends from the north shore of the Gulf of St. Lawrence near the mouth of James Bay, thence in a wavy curve to Great Slave Lake, where it drops south suddenly to a latitude about on line with the lower point of the Alaska Pan-handle, and thence to near the coast. It thus includes the southern Ungava peninsula, a narrow belt extending northwest from James Bay, the Yukon, northern British Columbia and southern Alaska. It is penetrated from the north by the Arctic Zone which persists on the mountains of the Yukon and from the south by the Canadian Zone which follows up the valleys of the Mackenzie and Peace Rivers. It is shut off from the sea on the Pacific side by the Alaska Pan-handle, which has an intrusive Canadian fauna. On the other hand, it works down the Rocky Mountains in a narrow band and scattered isolated spots to across the United States boundary. This zone can be considered more as a transition between the Canadian and Arctic zones than a primary division itself. It contains species whose centres of abundance are on either hand and a few peculiar to it. Musk Oxen, Caribou and Ptarmigan range into it in winter from the north, and it forms the extreme northern distribution of Wolverine, Woodland Caribou and Moose. Its most characteristic birds are the Rough-legged Hawk, Great-gray Owl, Northern Shrike, Pine Grosbeak, White-winged Cross-bill and Fox Sparrow.

The Canadian Zone occupies the greater area of Canada and can be roughly defined as the heavy coniferous forest belt. It includes practically all the remainder of the Dominion except the inner shores of the Nova Scotia peninsula, southern Ontario and Quebec in a narrow strip from about Montreal to just below Georgian Bay on Lake Huron, the prairies, a small irregular fringe along the Pacific coast opposite Vancouver Island and a few

mountain valleys penetrating the southern boundary of British Columbia. Beyond our borders it extends irregularly south on the mountains and high land near both coasts, including the south shores of Lake Superior, and penetrates the Hudsonian Zone on the north along the valleys of the Mackenzie and Peace Rivers and runs up most of the Alaska Pan-handle. This is the first land fit for systematic cultivation. The characteristic life is more numerous than in the preceding zones and includes the Moose, Woodland Caribou, Lynx, Marten, Porcupine, Varying Hare, White-throated Sparrow, numerous warblers, Olive-backed Thrush, Three-toed Woodpeckers, Pileated Woodpecker, Spruce Grouse and Canada Jay.

The Transition Zone is agriculturally the most important Canadian faunal division. It lies just along the southern border, including most of both shores of the Bay of Fundy, Quebec below the Gulf of St. Lawrence, a narrow belt following the north shores of Lakes Ontario and Erie, all of the western prairies and intrusive valleys into the south of British Columbia and the shores of the Strait of Georgia. The name Transition well describes this fauna. It contains comparatively few distinctive species, but is where many northern and southern forms meet. Except in the prairies it is the country of the hardwood forests where many of the temperate and hardier fruits, vegetables and cereals reach their highest perfection and is the northern limit of some of the tenderer ones. Its southern limit lies in the United States below, striking almost squarely across the continent on a line with the lower points of the Great Lakes, with excursions southward along the mountain ranges east and west and penetrated by extensions of the Upper Austral fauna along warm lowland valleys in the west. It forms the northern limit of range of the Cotton-tail and Jack-Rabbits and the American Elk, and is just touched upon by the Varying Hare from the north; the

Common Mole of the south meets the Star-nosed and Brewers Mole of the north and the Wild Cat partially replaces the Canada Lynx. Amongst birds, the Wild Turkey, Bob-white, two Cuckoos, Towhee, Wood Thrush and Yellow-Vireo are at the northern limit of their ranges, and the Baltimore Oriole, Bluebird, Catbird and Bobolink overlap the solitary Vireo and Wilsons Thrush.

The Upper Austral Zone in Canada is small in area but important in production. It just crosses our borders in a narrow shore belt along Lake Erie extending to the south side of Lake Ontario, including the Niagara Peninsula. It forms the famous Ontario fruit belt and is comparatively strongly marked by quite a number of characteristic forms especially amongst plants. It extends south as far as the northern borders of the Gulf States, variously dotted and cut into by intrusive branches of the neighbouring faunas from either side, especially in the broken country of the West.

There are not many peculiar mammals that are well known to the general public, and perhaps the Opossum is the most distinctive. Among birds we have the Yellow-breasted Chat, Mockingbird, Carolina Wren, Carolina Chickadee, Orchard Oriole, Barn Owl, a number of distinctive southern warblers and southern sub-specific forms allied to more northern variations.

These make the latitudinal or thermal divisions of our faunal life. Outside of the species mentioned are numerous forms that extend over the whole area, but show in different zones variations recognizable to the expert, but stopping short of specific distinction. A good example is the Hairy Woodpecker. This bird breeds over all the wooded parts of North America, but the birds from the Lower Austral Zone are quite separable by the trained eye from those of the Upper Austral and Transition and these from the large northern form of the Hudsonian. This is but one case of many where a northern and a southern race exist in the same species and which we

designate subspecies. Some of these geographical races are so slightly differentiated as to require an expert to separate them, while others are marked and striking. The critical difference between a full species and a subspecies is the fact that the latter intergrade and blend into each other gradually. With species the break between is sudden and intermediates do not occur.

With this zonal distribution and a variation of life groups depending basically upon temperature, we have another system of distribution east and west, depending largely upon physical conditions of habitat—the arrangement of land and water or mountain ranges forming barriers or highways of migration and leading certain forms in certain directions while barring them from others—and the comparative rainfall and humidity of climate. This has a primary direct influence upon the forms of life we are considering, as well as a secondary and indirect one through the plants and insects which give them food or shelter.

The principal divisions east and west are divided by the Rocky Mountains, which successfully cut the Pacific coast off from close contact with eastern forms. This great backbone of the continent extends in a northwesterly direction and forms the political boundary between Alberta and British Columbia. An extension of this line until it strikes the centre of the main Alaska-Yukon boundary roughly approximates the dividing line of the east and west faunas, leaving a triangular patch to the west, including British Columbia, southern Yukon and southern Alaska as the western or mountain fauna, and cutting through three of the transcontinental zones, the Transition, Canadian and Hudsonian with fragments of the Arctic on the higher elevations to the north.

The mountain district is characterized by an abundant rainfall, a high average humidity and a greatly diversified and rugged topography, forming a succession of mountain ranges with deep valleys between, paralleling the

coast, facilitating intercommunication in this direction but obstructing it from east to west. These topographical conditions continue to the south well into Mexico and enforce migration routes and conditions and associations more or less isolated. The marked humidity of the climate, especially near the coast, also causes or encourages special physiological changes in numerous organisms tending as a rule to produce larger size and browner or richer colouration. These differences in physical conditions and the isolation formed by the barrier mountains have produced a great number of forms peculiar to the trans-mountain district. In fact, comparatively few species, either of birds or animals, extend across the mountains from the east unmodified, and the native population can be divided into three heads: subspecific variations of eastern forms, species confined to the area and forms of evident mountain origin but spreading from them a certain distance eastward. Typical amongst the first may be mentioned the Moose and Woodland Caribou, the Oregon subspecies of the Ruffed Grouse, Harris', Rocky Mountain and Gairdner's Woodpeckers, Northwest Flicker, Dusky and Streaked Horned Larks, many forms of the warblers and sparrows and others.

Of full species confined to this fauna are: Douglas Squirrel, Black-tailed Deer, Pica, Yellow-bellied Marmot, Bushy-tailed Wood Rat, Little Striped Skunk or Spilogale, Blue and Franklin's Grouse, Band-tailed Pigeon, Red-breasted and Williamson's Sapsucker, Steller's Jay, Black and Vaux Swift, Black-chinned and Rufus Hummingbirds, Clark's Nutcracker, Northwestern Crow, Dipper, Chestnut-backed Chickadee, Varied Thrush and others. Of forms typical of the mountains but spreading a little way east are: Hoary Marmot, Mule Deer, Grizzly Bear, Red-naped Sapsucker, Lewis's Woodpecker, Red-shafted Flicker, Hammond's and Wright's Flycatcher, Black-headed Grosbeak and many more.

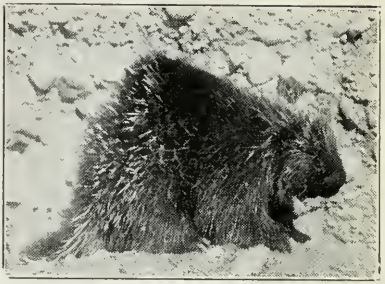
The Eastern fauna is comparatively homogeneous across the continent in a diagonal direction from the Atlantic coast to Alaska, with but slight variation in physical aspect, except in the prairie region of the central west. It is a country of low, even topography with good rainfall and covered with a uniform forest of little variety except such as is due to latitude and zonal distribution, but into it project the upper limits of the Great Plains characterized by great dryness, near-desert conditions and almost an entire absence of trees. This penetrates the moist continental fauna as a semicircular extension of the Transition Zone, its chord on the international boundary extending from the eastern Manitoban line to the mountains and north to Edmonton and Prince Albert.

The general tendency of this prairie fauna is towards small size and pale bleached colouration. Such species as are characteristic of it are those like the Prong-Horn Antelope, Bison, Coyote, Gopher, Prairie Chicken, Sage Hen, Burrowing Owl, Leconte's Sparrow, and Lark Bunting whose open country requirements debar them from wooded land. The remainder of its fauna is similar to that of the eastern country but generally sub-specifically differentiated from it through the drier climate and desert-like conditions. Some species that can be exampled under this division are Western Horned Owl, Say's Phoebe, Desert Horned Lark, Pale Goldfinch, Western Clay-coloured Sparrow, Dacotah Song Sparrow, Prairie Marsh Wren, etc.

The true Eastern Fauna, though generally similar from the far northwest to the Atlantic coast, does show a slight tendency to variation north of these plains, but the influence is slight and in broad treatment can be disregarded. Many species extend unmodified throughout the area, or when modification occurs it can usually be attributed to either thermal differences or the influence of the closely allied neighbouring prairie forms it comes into contact with in migration or on its edges. In general,

oto, Harlan I. Smith Figure 3

SE IN THE ROCKY MTS. PARK—BANFF

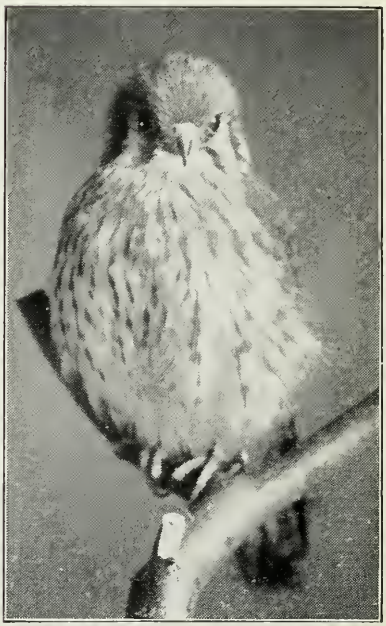


Photo, P. A. Taverner Figure 4

CANADA PORCUPINE

to, P. A. Taverner Figure 5

CHIPMUNK



Photo, P. A. Taverner Figure 6

AMERICAN SPARROW HAWK

(Female)

most of the subspecific forms mentioned as prairie or western are represented by type subspecies in this great eastern fauna, which is perhaps the typical fauna of Canada and which gives distinctive character to our biotal resources.

GEOLOGY OF THE CANADIAN ROCKY MOUNTAINS

By John A. Allan

The main object of this paper is to briefly outline the geological history of the Rocky Mountains, the prominent physiographical and structural features apparent to the mountaineer or to the railway-bound traveller, and, furthermore, to point out the influence which the rock structure has had in producing the present variety of sculpturing exposed in the various ranges of this great mountainous unit.

Not only do the topographic forms in the Rocky Mountains differ from those in the Selkirks and still more widely from those in the Coast ranges, but within the system itself, the erosion forms in the front ranges differ from those in the watershed range. The interpretation of this variety of the topographic forms necessitates a study of the structure and lithological composition of the rocks making up these mountains, as well as a consideration of the effect of glacial erosion.

The Rocky Mountain system forms the most easterly member of the Canadian Cordillera, sharply defined on the east by the foothills of the great plains in Alberta, and on the west by the long narrow intermontane depression, which has been called the Rocky Mountain trench. This system has an average width of sixty to sixty-five miles and follows a trend of N. 35 deg. W. The strike is roughly sub-parallel to the western side of the continent, which was defined by the position of the western protaxis as far back as Pre-Cambrian times. This mountainous unit is made up of a number of parallel ranges and ridges which in a general way lie *en échelon*, the more northerly segment being situated slightly west of the one to the south.

The ruggedness of the topography varies in different latitudes and, although the highest point is found in Pikes Peak, Colorado (14,147 ft.), yet the most highly sculptured ridges and ranges occur between the Crows Nest pass and the Mt. Robson district. The average elevation of the summits of these ranges between these limits is about 10,200 feet. Mt. Robson, the highest peak north of the 49th parallel of latitude, attains an altitude of approximately 13,000 feet.

Mention has been made of the sharply defined lateral limits of the Rocky Mountains. On the west the graben-like depression, known as the Rocky Mountain trench, forms as a most prominent orographic feature in the whole Canadian Cordillera. Extending from the International Boundary northwest into the Yukon, a distance of approximately 1,000 miles, this intermont depression varies in width from two to fifteen miles, and is in part occupied by the Kootenay, Columbia, Canoe, Fraser, Parsnip, Findlay, Kachika, Frances and Pelly rivers. In some portions of this trough the structure is that of a down-faulted block of rock between two major fault lines, a graben; such is the case where it is occupied by the Columbia and Kootenay rivers. In other places the depression has been carved out by various erosion agencies along a major fault line, which has rendered the rocks less resistant to erosion. The valleys of the Parsnip and Findlay are formed on this structure.

The line of demarcation between the prairies and the mountains is even more pronounced between latitudes 49 deg. and 52 deg. than the westerly limit of this mountainous system. The prominent escarpment, 2,500 to 3,000 feet high, in places almost perpendicular and composed largely of massive bedded gray limestone strata, sharply defines the mountainous topography from the rounded-topped ridges, for the most part covered with vegetation, that form the inner foothills.

This topographic feature is the result of overthrusting,

which occurred during the period of mountain building. The more massive rocks of the west were thrust in a northeasterly direction over the softer strata forming the understructure of the plains. At certain places along the base of this escarpment the plane along which the faulting occurred is exposed, and is generally known as the Lewis overthrust.

North of the Athabaska river this front escarpment is not so marked because the extent of overthrusting was not so great, the faults having been replaced to a certain degree by folds.

The rocks constituting this mountain system are for the most part of sedimentary origin, deposited in a sea, sometimes deep, sometimes shallow, as evidenced by the presence of casts of salt crystals in certain strata, and of ripple marks and sun cracks in other horizons. Conditions were suitable for the accumulation of sediments in the area now occupied by these mountains for a very long period. In age, the formations range from the upper part of the Proterozoic era, through the entire Paleozoic and much of the Mesozoic eras.

Igneous rocks have not been found north of Kicking Horse pass. In the Ice River valley, south of Field, there occurs a laccolithic mass of alkaline igneous rock covering about twelve square miles. The writer has described the geology of this intrusive mass in "The Geology of the Field Map Area, Mem. 55, Geol. Survey Canada."

The only other occurrence of igneous rock in this area is in the vicinity of Crows Nest pass. Here certain volcanic tuffs and breccias have a local distribution.

A structure section across the Rocky Mountains near the Bow and Kicking Horse valleys shows that the sedimentary formations are approximately ten miles in thickness. A similar section is exposed along the Athabaska and Fraser valleys.

Along the main line of the Canadian Pacific railway the section shows that the Pre-Cambrian rocks have a thickness of over 5,900 feet, and are exposed largely along the Bow valley above Castle station. The Paleozoic sediments are over 41,000 feet thick, and the Mesozoic upwards of 5,800 feet thick. The Paleozoic series contains one of the thickest Cambrian sections yet measured in the world, being approximately 18,500 feet. The limestones which form pronounced escarpments throughout the eastern slope are chiefly of Devonian or Carboniferous age.

Details of this section have been given by the writer in the memoir referred to above, and also in the International Geological Congress Guide Book, No. 8, part 2, page 168.

The youngest sedimentary formation within the Rocky Mountains is the lower Cretaceous, which includes the productive coal measures of the Kootenay formation. This is the oldest coal-bearing formation in western Canada.

During the closing stages of the Proterozoic era, represented by the Pre-Cambrian sediments, and during almost the entire Paleozoic era, a sea varying in depth from time to time occupied the Rocky Mountain geosynclinal basin and extended eastward over the present foothill area, at times probably extending to the Laurentian shield just west of Hudson Bay. The western shore line of this epicontinental sea lay along the axis of the Selkirks and the Cariboo mountains. From this western terrane most of the sediment was derived which makes up the Paleozoic strata within the Rocky Mountains.

The lithological character of the lower Paleozoic strata suggests that this sea was affected by broad uplifts and subsidence, causing a shallowing and deepening of the water, but in every case the beds were left in much the same positions as they were originally deposited.

However, during the late Carboniferous period the sea floor of the eastern geosyncline began to rise, and the western shore line receded towards the east. It was not until the close of lower Cretaceous epoch that the greater part of the area now occupied by this system of mountains appeared as land for the first time. Throughout most of the Mesozoic era shallow water conditions continued along the eastern half of the present Rocky Mountains and over varying areas on the plains to the east. During certain stages in the Cretaceous period extensive swamps and shallow bogs and lakes existed. In and about these a luxuriant vegetation flourished which later became compressed and transformed into the Cretaceous coal beds of Alberta. In central Alberta especially, such swamp conditions attracted the animal life of the period, which was represented largely by the land reptiles (the dinosaurians) and the turtles. Many of these animals became entrapped in the swamps and their bones later became petrified, hence the source of Alberta dinosaur beds exposed by recent erosion along the Red Deer river and other rivers in southern Alberta.

Towards the close of the Cretaceous there came a time when the stresses from the deep seated forces became so great that the rocky crust began to move. These stresses are believed to have come from the west and moved towards the east. The rocks in the substructure of the plains remained immovable, with the result that as the stresses accumulated, relief was found by the folding of the strata. As the pressure continued, the folds became closed and overturned toward the east. Later the strata broke along the lines of least resistance and the rocks on the west side of the fault were pushed upwards and thrust over the rocks on the east side. The more massive bedded limestones of the mountains were shoved over the rocks of the plains, producing an overthrust fault which is generally known as the Lewis overthrust. These mountain limestones, being more resistant to erosion,

Photo, John A. Allan Figure 1

FRONT ESCARPMENT OF THE ROCKY MOUNTAINS

The Devonian Limestones are thrust over the Cretaceous Formations

Photo, John A. Allan Figure 2

MONOCLINAL BLOCK STRUCTURE SEEN IN MT. RUNDLE AT BANFF

form an escarpment overlooking the plains. In this manner the prominent escarpment defining the eastern limit of the Rocky Mountains was formed. Similar structure is found in succeeding ridges west of the Front range.

The ridges consist of westerly dipping fault blocks which in many instances have a steep escarpment on the east and a more gentle dip slope on the west. This is caused by the more westerly block having been shoved over the one to the east. It is common to find in these ridges the older formation lying on much younger beds which have been over-ridden during the process of mountain building. In certain places in these mountains the Carboniferous, Devonian or even the Cambrian strata are found overlying the lower Cretaceous beds which are much younger and also less resistant to erosion. In Cascade mountain at Banff the Devonian beds are thrust over the Kootenay coal measure. In Roche Miette on the Athabaska the Cambrian beds overlie the Cretaceous.

In places along the fault lines streams have eroded through the overthrust mass, leaving isolated or partially disconnected outliers of the overthrust block away from the range to which they belong. Crows Nest mountain in the pass by the same name is a good example of such an outlier. Here the Devonian limestones are lying on the Cretaceous shales. Folding mountain at Brulé lake, west of Edmonton, is another example, but here erosion has not yet completely disconnected this mass from the ridge to which it belongs.

This first great uplift that occurred at the close of the Mesozoic and which formed the Rocky Mountains, is known as the Laramide Revolution. It is not possible to estimate the exact amount of uplift as a result of this orogenic movement, but taking into consideration the thickness of the sedimentary series that was uplifted, the Mesozoic sea floor must have been raised over three miles above its original altitude. This upward movement was

not a rapid one, but probably extended far into the Tertiary period.

It has not been possible to measure the actual amount of overthrusting, but Mr. McConnell has estimated that the Front range at Kananaskis has been thrust seven miles over the plains. Just south of the International Boundary line, the Lewis overthrust has been estimated to be at least fifteen miles.

The amount of shortening of the earth's surface in that segment now occupied by the Rocky Mountain system that has resulted from folding, faulting and overthrusting, is difficult to measure, but in some places it has been thirty miles and in others possibly as much as forty miles. That is to say, if the formations could be drawn back into their original positions the Rocky Mountain area would be thirty to forty miles wider than it is to-day.

These mountains can be readily subdivided into two parts, of which the eastern is the younger. The western division is the older and is made up of rock formations from Pre-Cambrian to Silurian in age. The ranges are irregular and have been eroded from strata gently folded or lying more or less horizontal.

The dividing range of the system, which is here also the continental watershed range, typically represents the older portion of the mountain system. The rocks in the eastern division are largely Devonian to lower Cretaceous in age. These formations have become faulted and overthrust into a series of monoclinal blocks, which have, in most ranges, a steep slope towards the east, and a more gentle slope towards the west.

Let us now consider briefly the development of the present drainage systems. Accompanying the initial stage of uplift, a system of *consequent* streams was developed transverse to the major axis of the uplifted area. As the Laramide uplift continued, many of these transverse streams with increased velocities were able to cut their courses across the gradually rising ranges

and smaller folds of the foothills. These streams are antecedent to the structure in that they were there before the ranges were formed. Examples of these *antecedent* streams are the Athabaska, Peace, Saskatchewan, Bow, Kicking Horse, Oldman and a few others.

In the troughs between the parallel ridges, on the softer infolded Mesozoic beds, a longitudinal system of streams was developed, and therefore much younger than the transverse streams. These are called *subsequent* streams because the course followed is marked by a structural break or zone of rock less resistant to erosion. This system of subsequent drainage is noticeable throughout the eastern slope. Such valleys as the Spray, Cascade, Sundance, Forty Mile, tributary to the Bow, or Moose, Fiddle, Rocky or Maligne valleys tributary to the Athabaska, are examples.

The V-shaped valleys of both the transverse and subsequent systems of drainage had become deeply incised in this uplifted area before the opening of the Pleistocene epoch, or the glacial period. Snowfields enlarged and valley glaciers moved down and formed the trunk glaciers in the transverse valleys. By glacial gouging and plucking, the V-shaped valleys became modified into the U-shaped ones. The present glaciers along the watershed range and on the west slope are only miniature remnants of the earlier ice sheet that filled many of the valleys and covered many of the ranges. The work accomplished by the glaciers is still eminent and adds beauty to the scenery. Besides giving gracefully rounded curves to the valley sides, the glaciers eroded into the lateral depressions along the valley or range, and formed basins or cirques many of which enclose lakes.

Glaciers have been the cause of the formation of most of the lakes within the mountains. Three prominent types might be mentioned. Those occupying rock basins carved out by glacial action such as lake Agnes at

Laggan, Turquoise and Margaret in the Upper Bow, lake Magog at Mt. Assiniboine, and Berg lake at Mt. Robson.

Such lakes as Moraine, Louise, Minnewanka, Kinney, Maligne, Pyramid and Waterton occupy basins formed behind morainal detritus. A third type of glacial lake is represented by such as Hector, Bow, Emerald, Gloria and Marvel. The barrier in this case consists of the outwash of gravel, and sand from the front of the ice. Other types of barrier lakes can be found in this area but these cannot be mentioned here.

The topography of at least the major trunk valleys, such as the Athabaska, Fraser, Saskatchewan, Bow and Kicking Horse have been greatly modified by the morainal debris left by the disappearing valley glaciers. In many cases the outlets of these valleys became blocked and in the lakes formed behind these barriers, gravels, sands and clays were deposited. These deposits are exposed in the terraces along the sides of many of the larger valleys.

In some of the smaller tributary valleys the rock waste from the ice occurs as lateral moraines, forming ridges that run lengthwise along the valley, and also as terminal moraines that form transverse ridges.

The influence which the rock structure has had upon the present scenery in the Rocky Mountains is so marked that brief mention must be made of it here. The type of sculpturing produced by weathering depends on the composition of the rock and also on the existing structure.

Seven distinct types of mountains can be recognized in this area.

1. Mountains composed of horizontal strata tend to weather into the pyramid forms, usually broadbased, sloping regularly to the apex. The slopes depend on the character and thickness of the composing strata. Ex-

Photo, John A. Allan Figure 3

THE DEVIL'S GAP

Typical U-shaped Depression Developed and Modified by Glacial Action

Photo, John A. Allan Figure 4

MT. MOLAR

Showing resistant Cambrian Limestone underlain by less resistant shale formation

amples are formed principally along the watershed range, such as Robson, Pyramid, Geikie, Forbes, Lyell, Temple, Deltaform and Assiniboine.

2. In slightly inclined strata the pyramid outline is slightly lopsided, as seen in the Aylmer, Goodsir, Ball, Balfour or Crows Nest.

3. When the strata is moderately inclined the block type of mountain is produced, as in Rundle, Cascade, Roche Miette and many peaks in the first three ranges of the Rocky Mountains.

4. In vertical or steeply dipping strata, mountains like Edith, Hole-in-the-Wall or Spike Peak are produced.

5. Anticlinal mountains are rare, as up-arched strata soon become incised and eroded along the central axis. Knobs like Stoney Squaw at the south end of Cascade mountain illustrate this type rather poorly.

6. Synclinal mountains are common and indicate mature erosion, since the syncline at one time occupied the trough between up-arched masses of rock. Folding mountain, President range, Castle Mountain range, and the range in which Mt. Molar and Mt. Hector are situated give examples of this type.

7. When thick beds of resistant rock are interbedded with less durable strata, "weather terraces" are formed, as seen in Amiskwi peak, Pilot, Redoubt, and also in Mt. Molar. This last type is closely related to those mountains which belong to either the first or second classes.

MOTION OF THE YOHO GLACIER 1914-1916

By Arthur O. Wheeler

Unfortunately, it was found impossible to continue the yearly measurements of the Yoho Glacier in 1915, and it was not until the 24th of July, 1916, that they were resumed.

On August 6th, 1914, four metal plates had been placed in line, at approximately even intervals, across the more level portion of the ice forefoot of the glacier that had been used for such purpose since the inauguration of the series of observations. A careful search was made for the plates, but not one of them could be found.

Rate of Flow

Owing to the continual recession of the forefoot, amounting in ten years to 321 feet, the line of the plates was getting dangerously close to the great crevasses that open up at the terminal point of the glacier and extend inward. The result was that on looking for the plates none could be seen, and it could only be surmised that they had fallen into recently opened crevasses intersecting the line of their movement.

In consequence, it was impossible to get any data for the rate of flow of the ice that had occurred since the observations in 1914, when the plates were reset in line, and it was necessary to now start afresh.

Expecting some such happening, four other plates had been brought and these were duly placed in position on the line between the north end of the measuring base, on the mountain slopes east of the ice, and the white stone in the face of the cliff on the west side that had always been used heretofore. Angles were read from the south

end of the base, sighting upon the north end and each of the plates in order, and they were thus fixed in position.

For Advance or Retreat

The usual measurements were made from Rocks Nos. 1 and 2 on the left side of the stream and from the Sherzer Rock on the right side. The results are set forth in the following table:

Table Showing Measurements to Nearest Ice

Year	From Rock No. 1 Left Side of Stream	From Rock No. 2 Left Side of Stream	From Sherzer Rock Right Side of Stream
1914	277.6 ft.	313.0 ft.	222.7 ft.
1916	413.0 ft.	449.0 ft.	247.0 ft.

1914-1916 Average Retreat of Ice Forefoot—98.6 ft.

Annual Change in Formation of Ice Forefoot

In accordance with the practice of other years, photographs were taken from Station E, situated where the trail comes out of the forest on to the moraine, and from Rocks Nos. 1 and 2 on the left side of the stream (see map opposite page 274, Canadian Alpine Journal, 1908, Vol. 1, No. 2).

The view from Station E (Illustration No. 1) shows a very marked flattening of the forefoot and a striking recession on the eastern side; examination shows that the body of the ice forefoot has become much narrower and that a correspondingly wider expanse of bed-rock is exposed.

The ascent of the forefoot was a simple matter, necessitating very little step-cutting where, in previous years, quite a bit of step-cutting had to be done; Illustration No. 2 shows the forefoot in profile. On the opposite side, the eastern one, it was now impossible to cross the canyon of the stream from the glacier between Mts. Balfour and Gordon by the old route, where ice-bridges had spanned it, and it was necessary to descend to near

the extreme end of the forefoot, again a very simple matter, as the slope was an easy grade where before there had been great ice-cliffs. All the eastern edge of the ice was covered by rock debris and mud.

The beautifully arched ice cave, for which this glacier has always been remarkable, was absent and the extremity of the forefoot seemed hardly thick enough to produce it. A comparison of Illustration No. 1 accompanying this report with Illustration No. 4, opposite page 56 of the Canadian Alpine Journal, 1913, Vol. 5, will give a good realization of the remarkable shrinkage that has taken place. Again, if Illustration No. 2 be compared with Illustration No. 1, opposite page 54 of the 1913 Journal, it will be clearly apparent how greatly the mass of the forefoot has decreased in volume and how the rock bed on which it rests is being gradually uncovered by the retreat of the ice.

It is much to be regretted that this, heretofore, most attractive feature of the many scenic attractions of the Yoho Valley, should have lost so much of its spectacular beauty in the form of its magnificently-arched ice cave, and it is to be hoped that it has not gone for all time. The spring season of 1916 was fully a month later than usual and this lateness carried throughout the summer, so that the cave formation, which generally appears during the latter half of July, may have been formed in August. The cave is due to the action of the stream from the Balfour-Gordon Glacier which, entering from the northeast, passes under the forefoot of the Yoho Glacier; but its course is now so close to the eastern edge of the ice that it will not be very many years until, at the present rate of recession, the ice will have ceased to cover this portion of the bed of the stream.

Photo, A. O. Wheeler

ILLUSTRATION No. 1
Ice Forefoot of Yoho Glacier from Station E

Photo, A. O. Wheeler

ILLUSTRATION No. 2
From View Point 79.3 feet South of Rock No. I—1916

MISCELLANEOUS SECTION

THE GARIBALDI DISTRICT

By C. Chapman

The British Columbia Mountaineering Club has made several attempts to have a Government Reservation established over a certain mountain district within easy reach of Vancouver. Our efforts with the late government were unsuccessful and we are now taking steps to place the matter before the present administration.

The district proposed to be reserved lies at the head of Howe Sound, and is easy to reach now that the Pacific Great Eastern Railway is in operation. A journey has actually been made from Vancouver into the heart of the district and back again in two days. A trip like that does not, of course, give much time to appreciate the change from city life, but two such days may make a big difference in the life of a busy man.

I do not for a moment wish to belittle the importance of those local week-end climbs and campings above the two thousand foot line which confer such unmeasured benefit upon all those who take them. The physical and mental value of the weekly climb on Grouse Mountain and the nearby hills cannot be over-emphasized. But the case is a little different as regards the proposed Garibaldi Park, with its wide solitudes, its snowy plateaus, and numerous glaciers. The stimulus, both physical and mental, which belongs to an alpine district, is altogether different from that afforded by the mountains which we of Vancouver see from our northern windows. The air is more bracing in a marked degree, and the variety and interest of the landscape are immensely greater. To

analyse these effects would require a Ruskin, and some of the most striking passages in Ruskin's writings are analyses of just these aspects of mountaineering among lofty summits and glacial scenes.

To those who have to make intense mental exertion for certain periods, whether learned professors, or captains of industry or responsible statesmen, there is nothing (not even angling) to take the place of climbing among the eternal snows. We shall have many such men in Vancouver and Victoria in the future; men on whose health and strength the country will have to depend; and to all these the neighbourhood of Garibaldi Park will be a priceless boon.

The proposed park comprises some 300 square miles, being all that portion having a greater elevation than 3,000 feet above sea level in the area bounded by the Mamquam and Pitt Rivers, and by the main stream and east branch of the Cheakamus River.

The dominating peak of the district is Mount Garibaldi, a volcanic cone having an elevation of 8,700 feet. It is a striking object even when viewed from the Squamish Pier, whether seen in its usual form of a snowy peak or, as it sometimes appears, as a huge ash-coloured pyramid. It is believed to be the highest mountain of the Park, and around it centres a wonderful variety of scenic beauty.

Garibaldi presents the variety of rocks which belongs to all volcanic mountains. It can be climbed from the north up a steep snow slope and an arête rising above the Warren Glacier, but is more easily approached from the south side by following the long black ridge, known as Round Mountain, and thence up a long snow slope to the saddle, whence the peak is soon reached. There are, as a matter of fact, two peaks, the southern being called the Pinnacle and the northern the Peak. Local mountaineers have not yet settled which is the higher. At least six glaciers hang on all sides of the mountain and

extend well below the timber line. They have been named the Garibaldi, Lava, Pyramid, Pitt, Sentinel and Warren Glaciers.

Columnar Mountain is one of the smaller peaks on the south side of Garibaldi. It is dwarfed by its big neighbour but is close on 7,000 feet high. It is composed almost entirely of basaltic lava, split into nearly regular columns, and presents one of the striking geological features of the district.

East of Garibaldi lies Mount Mamquam, which may be reached by crossing Lava Glacier diagonally to its eastern edge, passing on the way Rampart Lake, a remarkable sheet of water which deserves some special mention. This lake is enclosed between a low crescentic rim of rock and the glacier, which, flowing across the horns of the crescent, forms the western boundary of the lake. The icy walls rise abruptly from the water to a height of about twenty-five feet, forming a natural dam. The ordinary way of escape must be underneath the glacier, but there are traces of a high-level channel over the rock on the eastern side.

The first recorded ascent of Mount Mamquam was made in 1911, and our first glimpse of the vast snowfield at the top almost justified the remark of our leading man that it was "as big as England." The highest peak is on the southwestern edge of the snowfield and we had a three-mile trip across to reach it. The aneroid there registered 8,400 feet.

It is the southern part which contains the two highest peaks of the district, but it has no extensive meadows suitable for camping. A little farther north, however, there is room to spare. It was during our trips up Garibaldi and Mamquam that the idea was conceived of holding the next camp on the other side of Garibaldi Lake. As viewed from Copper Peak, the land at the lower end of the lake seemed to drop suddenly into the

Cheakamus Valley and to offer a good route by which the lake could be reached. Such proved to be the case, and in 1912 a camping place was selected on some broad meadows running in the form of a terrace for over a mile along the southern slope of Black Tusk Ridge at an average elevation of 5,000 feet above sea level and 400 feet above Garibaldi Lake. The Black Tusk Meadows, as they have been named, are the finest of their kind and are in a very convenient position for a mountain camp.

The Black Tusk itself, with an altitude of 7,350 feet, is one of the most remarkable features near the camp, and from its shape can always be recognized, no matter from which side it is viewed. The Tusk is composed of basalt jointed so closely and completely as to divide it into irregular columns, so loose in places that they can be moved by hand. It is almost a puzzle how the sides of the Tusk can stand at so steep an angle. Viewed from below, they appear to rise almost vertically, but closer inspection shows numerous steep gullies which afford easy access to the summit.

The base of the Black Tusk is a favourite exercising ground for goats. Marmots and ptarmigan, however, constitute the chief wild life of the district. An occasional bear or wolf is seen, but they soon get wind of man's presence and give us a wide berth.

Castle Towers Peak (8,000 feet) was the highest peak near the camp and made a very good day's climb, the journey being made by way of Helmet Glacier and thence up a long ridge. The Castle Towers Glacier is very heavily crevassed. Helmet Glacier is interesting because of distinct ice currents observable in the lower part.

Adjoining Castle Towers by way of the Battlements and only a little lower than the Towers in altitude is Copper Peak. This was first approached by us from the south, and it was from this peak that the first clear view was obtained by our Club down the Sphinx Glacier to

Photo, W. J. Gray THE TABLE, WARREN GLACIER, AND MT. GARIBALDI FROM RED MOUNTAIN

Garibaldi Lake and the Meadows which induced them to change their camping ground.

Garibaldi Lake is one of the most interesting features of the district. It is three and a half miles long by two miles wide and is surrounded by peaks and glaciers in great variety. The most remarkable geological observation made by the Club was probably the manner in which Garibaldi Lake is drained by percolation through the Barrier, a precipitous bluff 4,500 feet high, into Stoney Creek. The Barrier itself presents a good vertical section of the lava bed which covers a large portion of the country south and west of Garibaldi Lake. Its position with regard to Stoney Creek suggests that the lava flowed down from the vicinity of Mount Garibaldi and formed a dam in the upper part of the valley, thus completing the basin in which Garibaldi Lake lies. The trip around the lake can be made in twelve hours and is one of great interest.

During the 1913 camp of the Club, a raft was built and some of the members crossed the lake after four hours hard paddling. At a distance of a quarter of a mile from shore an attempt was made to sound the depth of the water, but no bottom was found at two hundred feet, which was the limit of our alpine ropes. On this occasion the party essayed to climb the Table, a structure of basaltic rock with loose columnar jointing like the Tusk, but having a remarkably flat top like the "mesas" of Arizona and Mexico. Owing to the dangerously loose structure of the rocks, this attempt and the next failed and it was not until last year that one of our members made the first ascent. The summit was found to be perfectly flat, with an area of about 400 feet by 150 feet, and covered with heather and stunted trees. This level surface breaks away in perpendicular walls of rock varying from 300 to 1,000 feet in height.

No account of this region is complete without a reference to its wealth of blossoms. The Black Tusk

Meadows and the ridges adjoining the glaciers and snowfields are rich botanical areas belonging to the Arctic and sub-Arctic zones, noted, as is usual with the flowers of the higher regions, for their bright, sharp colours and complete absence of perfume.

The alpine phlox (Phlox Douglasii) is found in great profusion, as are the mountain anemone (Anemone occidentalis) with its beautiful cream-coloured flowers and the Bryanthus glanduliflorus, commonly called white heather. The little Saxifrage, with its pink and white blossoms, grows in dense, compact masses, and follows the retreating snow very closely. The Moss Campion (Silene acaulis), too, with its beautiful carpet of pink flowers, displays a degree of hardiness which can scarcely be appreciated by those unfamiliar with the life of the mountain flowers. Then there is the Polemonium confertum, sometimes called Jacob's Ladder, one of the rarest of alpine treasures and beyond comparison for its blue colour with anything in the floral world. The blue lupins are found in great masses, and their artistic effect seemed to be appreciated even by our pack horses, who refused to be moved from them. And there are Erythroniums, and Indian Paintbrushes, and a host of others too numerous to mention.

The preservation of the Garibaldi region as a National Park will give Vancouver another attraction for the tourist. If a road were built from Daisy Lake to the Black Tusk Meadows the district would be as easy to reach as the Rainier National Park. It lacks nothing which that park possesses except elevation of the main peak. Many private individuals, other than members of our Club, have visited the district and all are unanimous in its praise. Garibaldi Lake has been favourably compared with the far-famed Lake Louise, and has the added merit of being within a $5.00 train ride. Banff is a long way from Vancouver and a great many people unfortunately never get any nearer to the mountains

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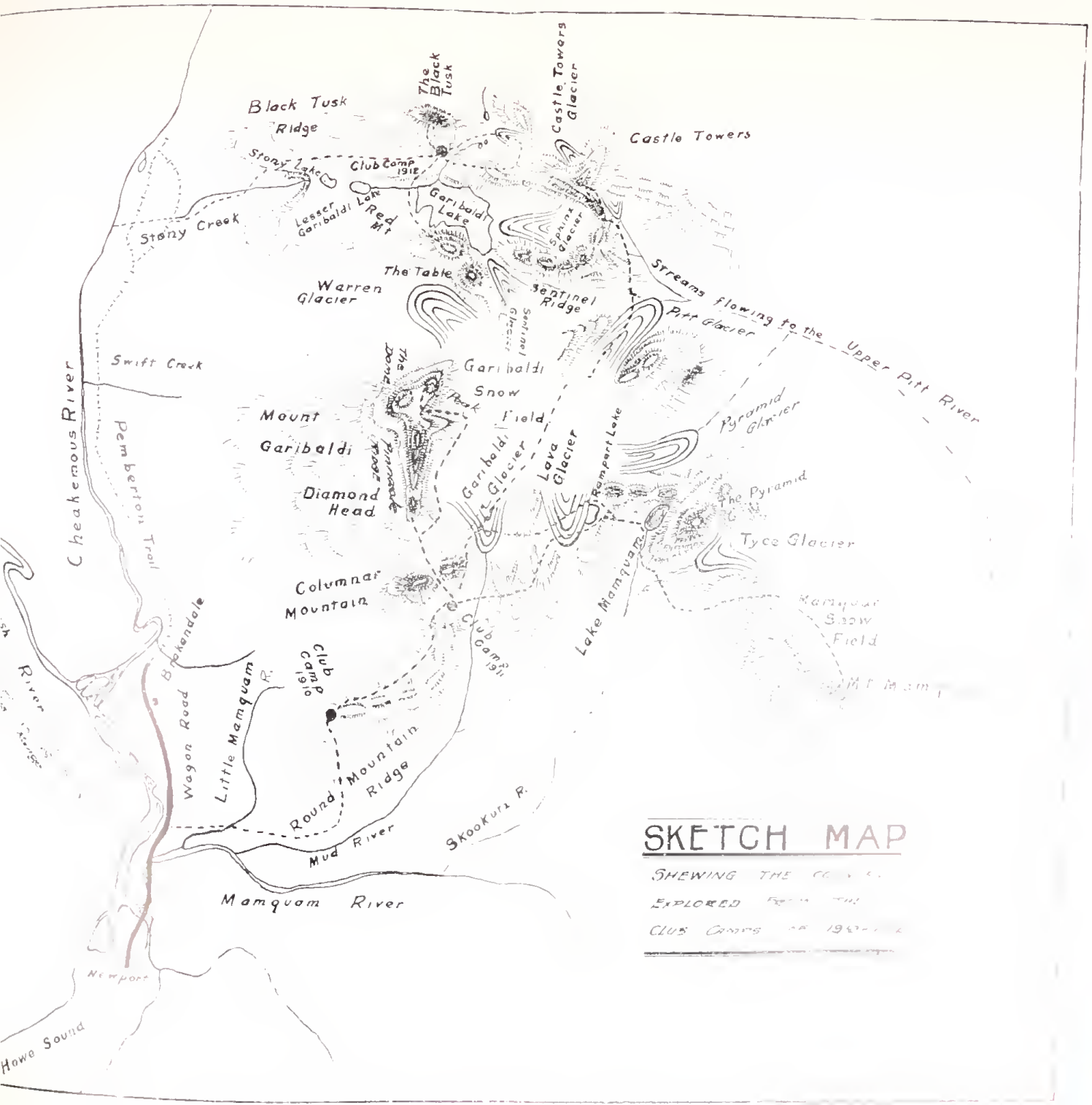

SKETCH MAP

SHEWING THE COURSES EXPLORED FROM THE CLUB CAMPS OF 1910-11

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than is permitted by a seat in a railway carriage as they go through the Rockies. Strathcona Park is almost as costly to visit and is as remote as the Yukon to most of the citizens of Vancouver and the neighbouring cities.

Here, however, we have the opportunity of creating a resort full of interest to every man who has the slightest eye for nature, to which the overworked and over-worried can go in the full certainty of being restored to healthy vigour. If our government does not recognize the value of the district soon, it is probable that some of the syndicates which are always on the lookout for such things will discover it and make arrangements to exploit it for their own benefit. It seems to us that now is the time to arrange for its protection.

IN MEMORIAM

CAPT. A. FELIX WEDGWOOD
5th North Staffordshire Regt.

"Killed in Action, 14th March, 1917." A short epitaph, but is there anywhere a finer one? After Waterloo the stonemasons kept tablets in stock with the motto "*dulce et decorum est pro patria mori.*" To-day we have more heroes and our feelings are more restrained.

We first knew Captain Wedgwood—not a Captain then—in the summer of 1910. In the early summer he came to the Banff Club House, with an introduction from Toronto, wishing to become a member of the Club and to see something of Canadian climbing. He had already done some mountaineering in the Alps and had made a recent attack on Aconcagua, but was frostbitten before he reached the top. He made the ascent of Torlosa.

From Banff, in company with Dr. Hickson, he journeyed to Mt. Assiniboine. Bad weather prevented an attack on the peak, but gained him a wife. He met, in camp with her brother, Dr. T. G. Longstaff, the well known Himalayan explorer, Miss K. Longstaff, the daughter of Col. Longstaff, of Wimbledon, and the marriage was celebrated the following year.

He was with the Club during the Camp in Consolation Valley, making several ascents, after which he made a successful attempt on Mt. Assiniboine and also Hungabee. He stayed at Glacier and made several ascents there, going on to the Pacific Coast, where he climbed Mt. Garibaldi—a fine mountain only now coming into its own. He returned to England in the autumn and, while always hoping to return to Canada, never succeeded.

He was born in 1877, the son of the late Clement Wedgwood and Emily Catherine, sister of Lord Rendel. He was descended directly from Josiah Wedgwood, the great potter. Educated at Clifton and Trinity College, Cambridge, he became a civil engineer. He had a great love of travel and climbing appealed strongly to him.

In 1910 he published his well-known novel "The Shadow of a Titan," which deals largely with South America.

When the war broke out he rejoined his Territorial Regiment as Lieutenant. He was wounded at Hill 60 (Ypres) in July, 1915, promoted Captain in August, 1916, and fell in attacking Bucquoy. He lies in the British cemetery of Rossignol Wood, not far from the field of action.

He leaves to his daughters, and a son whom he never saw, a heritage of honour and an example not to be forgotten. To his wife, herself a well known member, and to his young children, the Club extends its fullest sympathy. S. H. M.

HARLEY H. PROUTY

Among the keenest and best mountaineers sent us by the United States was Harley H. Prouty. He came to the Cathedral Camp of

CAPT. A. F. WEDGWOOD
Killed in action 14th March, 1917

1913 as a representative of the Mazamas, of Portland, and was fascinated by the Canadian Rockies. From this Camp he made the ascents of Mt. Odaray and Mt. Huber, the latter by the rock route, one only suited to experienced climbers. From the Cathedral Camp he proceeded to that at Mt. Robson Pass, whence he made the ascents of Mt. Lynx and Mt. Resplendent. With B. S. Darling and the guide, Walter Schauffelberger, he made the first attempt on Mt. Robson by the West Arête. The party reached within four hundred feet of the top, but bad weather prevented the complete ascent. A full account of the climb is given in the Canadian Alpine Journal for 1914-15. Prouty always hoped to come back to the magnificent Robson neighbourhood and achieve the peak, but it was not to be. He died in St. Vincent's Hospital, in Portland, on September 11, 1916, aged 59.

He came of an old New England family, whose records date back to 1667. For many years he was in the lumber business, but retired about ten years ago and spent much of his time gratifying his taste for travel.

Exceedingly reserved, he was greatly liked by all who came to know him. He was of the best type of mountaineer, enthusiastic, clear-headed and unselfish.

S. HARPER GRAY, D.D.

The number of our original members grows smaller. On August 15th, 1917, Dr. Gray passed away in Toronto after an illness of some two months. He was born in Kingston in 1873 and took his Arts Course at Queen's University. He completed his Theological Course at Knox College in 1898, whence he proceeded to Banff. There the mountains cast their spell on him, a spell that is never broken.

His most interesting climb was the first ascent of Mt. Hermit in the Selkirks, which he made in the company of the late Dr. Herdman and Major A. C. Gordon, M.C., who is now "Somewhere in France." A detailed account of the climb, written by Dr. Gray, appears in the first issue of the Canadian Alpine Journal. He also climbed Mt. Lefroy, but found the climb "not to be compared to the varied and exciting work on snow and rock which one meets with on Hermit."

He never managed to come to the Club Camps, but kept up his interest in the Club, and fully appreciated the value of the work it was doing for Canada.

At the time of his death Dr. Gray was minister of Old St. Andrew's Church, Toronto, where he had been some five years and where his work was greatly appreciated.

MAJOR W. F. GUILD

52nd Battalion, C.E.F.

Since the outbreak of this cruel war, we, as Alpiners, have been thrilled with the splendid deeds performed by our members. Again and again we have been compelled to add names and yet names to the long list of those who have made the supreme sacrifice while doing their duty on behalf of our beloved country, and now we must add the name of Brigade-Major W. F. Guild, who was killed in France on April 10th last.

Major Guild attended the 1914 Alpine Camp held in the Upper Yoho, and it was while in camp when he was battling with the dangers and difficulties of the great white giants that the first news of the world's war came to him. Then came the news that Canada was marshalling her manhood to take part in the great struggle. Guild immediately hastened to Winnipeg and identified himself with one of the training corps and qualified as lieutenant; later on he qualified as captain. Early in 1915 he joined the 52nd Battalion, and with that Battalion he went overseas. During September, 1916, he was wounded and sent home on furlough. In the early part of 1917 he again returned to France and was raised to the position of Brigade-Major, which position he only held for a few days before his death.

He was buried in the British cemetery at Barlin, France, and a suitable stone has been placed to mark his last resting place.

Major Guild was born at Kemnay, Manitoba, and received his early education at Brandon High School. From there he went to Manitoba University, where he won many scholarships, and graduated from Manitoba College in the famous class of 1909. He was not by any means an academic recluse or scholarship man only, but took an active part in every department of University life; he played on the senior football team during his entire University course and was captain in his final year. He was also President of the Literary Society, and had a wide reputation as an inter-collegiate debator. Having graduated from the University, he became a student-of-law in Winnipeg, and after completing a brilliant course he was called to the Bar in 1913. After graduation he entered the firm of Messrs. Campbell, Pitblado & Company, of that city, with which firm he was connected at the time his country called him to do battle in her cause.

Broad in his outlook of life, enthusiastic and ambitious to accomplish life's mission he spent his time in effort that would accomplish this end, yet when the call came to the young manhood of Canada to go to the front Major Guild was the first to respond and answered "O Canada we stand on guard for Thee." The spirit which he carried with him into battle was not one of adventure but a deep sense that he was fighting the battle for democracy and freedom. Not only does the Alpine Club lose a splendid and loyal member, but Canada has lost one of her noblest sons.

Although Major Guild has been called from us, yet the splendid example he always set must ever stimulate and inspire us to better and nobler living, and it may seem that his life has been cut off, yet we feel that his spirit will live in a nobler race of men yet to come.

A. S. Matheson.

SERGEANT SIDNEY J. UNWIN

Canadian Artillery

Still once again the Alpine Club of Canada must record a broken link in the Society's chain in the loss of one of its well-known members—Sergeant S. J. Unwin. "Sid," we who knew him best called him affectionately, and that name will recall his attractive characteristics to a large portion of our Club.

Sid became a member of the Canadian Alpine Club in 1908 through long association with every peak and valley of any note

MAJOR W. T. GUILD
Died of Wounds

between the Saskatchewan and Athabaska Rivers. It was through his grit and determination that Maligne Lake was so easily found in the summer of 1908, for it was he who made a record climb to a mountain later known as Mt. Unwin and there saw the lake lying a few miles east of him. There is probably no other man who has had the intimate knowledge of so vast an area of these hills as Sid, for he knew every crack and cranny between the two above-mentioned rivers, first through the long winters he spent in trapping and the shorter summers when he guided the would-be explorer or the climber into unknown ways. His resourcefulness under trying conditions, his patience and good nature at all times, his splendid bunch of horses, made a trip into the hills with Sid a pleasure that no one will ever forget who had the good fortune to be out with him. To enlarge upon his life *before* the summer of 1914, seems like repeating that which we all know so well, so I turn to the years which have followed.

Sid was in the heart of the hills when the call to arms came that fateful summer of 1914. On his return to Banff that fall, he quickly settled his business and enlisted with the 20th Battery under Col. Stewart, then stationed at Lethbridge. He was made Corporal and it was typical of the man that when later he was offered a commission he refused it, as he wished to get to the front as quickly as possible and the commission would have held him back for another draft.

In June of 1915 his battery was transferred to England; in January of 1916 it was sent to France. From that date Sid served the guns till the day on which he was wounded, May 3rd, 1917.

His letters invariably spoke of the mountains which he "often wondered if he would ever see again," and he always greeted photographs of the country he loved with great enthusiasm. He was a soldier in every spirit of the word. He never mentioned the hardships with which he must have been daily in contact but several times wrote not to send him the little comforts "for we have all a soldier could ask for," and to "send them to the boys in hospital." Then came the third of May and a telegram that he had been wounded. Eighteen days later came these words from him: "Well, Fritz got me at last. I have lost my right arm at the shoulder, am quite deaf from serving the guns, have numerous cuts on my head, a good many bruises, but otherwise I am fine and dandy." This was written with his left hand and was a true example of British pluck and spirit.

So many of us knew Sid and his clean, gentlemanly ways here, that the gap of our knowledge of his life after he crossed the seas may be easily filled by a letter which was written to his mother just after his accident and is as follows: "Dear Mrs. Unwin, I have to-day obtained your address from your other son, Gunner Unwin, and I wish to tell you how sorry the whole Battery is on account of losing Seargeant Unwin. No single man or officer in the whole battery would be so badly missed as he is by everyone and we are afraid that now he has lost his arm he may be unable to come back to us when his wound is healed.

"I can truly say he was the most efficient, reliable and dependable N.C.O. in this unit. I had him recently under me in charge of the wagon lines. He pined to get back to the guns however, and it so happened that we came back together. The day he was wounded

I happened to be in charge of the guns. He was doing some routine firing and had sent all his men away as the Battery was being shelled and he did all the loading and firing single-handed. He was not deterred from carrying on alone, although one of his ammunition pits was set on fire by a direct hit and some others very close.

"I was the only officer at the Battery at the time and I was so much pleased with, and admired his conduct, that I committed the circumstances to paper at once in case of accidents, so that if anything did happen to me, the paper would bear witness. In the evening, however, things having become quieter, he called back his limber gunner and together they were cleaning out the gun when a high explosive shell burst in the air above his gun and wounded both of them. Capt. Flexman attended to your son, while I did what I could for the other.

"I should have told you before this that Sergeant Unwin had extinguished the fire in his ammunition pit.

"I was very sorry to hear the next day that Sergeant Unwin had to have his arm taken off. I understand that except for this he is all right and have no doubt that he will be with you in a week or two.

"When you see your son, give him my kindest regards and best wishes and thank him for me for his invariable patience with a very trying officer.

"Yours very sincerely,

"E. K. Carmichael, Lieut."

Surely no comment is necessary on such words, every line rings with the truth even as we knew him here.

After he was wounded, he was sent to Leeds hospital and all his letters were bright and cheerful, always speaking of the hills and the trails for which he had always longed. But on the 30th of June came the telegram "Sid died suddenly this morning." At present it is all we know.

Thus has gone from us one of the most fearless, most lovable members of our Club, joining that great company whose places cannot be filled, whose places we would not have filled. They will live in our hearts till we too have passed beyond the hills.

MARY S. WARREN.

ALPINE CLUB NOTES

CONCERNING MT. MOLOCH

In the article contributed to Vol. VII of this Journal, pp. 33-47, the writer failed to correct a couple of slips on page 37. The word "northeast" on line 15 should read simply "north"; and it was, as I now understand from Mr. Wallace's instructive article in the same issue of the Journal, on a peak on the west and not on the north side of Moloch that we saw the rival party on the day previous to our attempt. The peak is named by Mr. Wallace "Baal," and his description of its relation to Moloch is very illuminating for one who, like myself, has not approached or had a view of the latter mountain from that side.

The question as to which is the better side for another attack on Moloch can scarcely be decided by one who has tried only the eastern and southeastern ridge. Against the fact that this route of approach is longer and lands you at the more risky part of the climbing after some fatiguing, though quite safe and not very difficult work, has to be set the drawback of an approach to the summit ridge of Moloch from Baal which, according to Mr. Wallace's description, consists in the entire lack of decent foot and hand-holds and the consequent danger entailed by a slip on the part of a climber where there is little or no opportunity afforded of belaying the rope. It seems clear that from whichever side the mountain is again attempted, it will be advisable for the climbing party to be provided with rope-soled shoes or their equivalent.

The main difficulty about Moloch is the fact that one cannot make a camp conveniently near to its base; hence a long march is necessitated, and this leaves too little time (on a day's trip) for the last part of the climb which will undoubtedly be slow work. The picture of the summit ridge (p. 40 of the article referred to) indicates this very clearly. The fact of six unsuccessful attempts having been made on the mountain has led to such an extravagant statement (not in the A.C.C. Journal) as that "it is an impregnable fortress." Given fine weather, a long day, favourable snow conditions and good average climbers, it will certainly be captured without extraordinary efforts. I have seen this happen with more difficult peaks in the Rockies, and, if only the amateur of the party had been in fair condition on the day of our attempt or the party had had sufficient provisions to permit of their resting a few days before renewing the attempt, I think there is little doubt that, ere this, the summit would have been heightened by a cairn.

J. W. A. Hickson.

MT. LONGSTAFF

In July and August, 1916, Professor Holway, with Dr. A. J. Gilmour and Mr. Howard Palmer, explored the region of Mt. Longstaff, going in by way of the Swiftcurrent River. Professor Holway writes:

"The valley ended in great cliffs 2,000 ft. high with the tongue of the glacier just showing at the top and the great stream falling through narrow places in the cliff, and then behind an ice pile 600-ft. high. With much effort a camp was made in a small grove on a level with the glacier tongue, a few feet from the edge of the precipice, with glorious views of Mt. Whitehorn and down the valley. There were waterfalls everywhere, several coming out of holes in the face of the cliffs, and high above camp a glacier discharged frequently. The ascent of Mt. Longstaff was made, also of a minor peak in the same range, and of the peak at the north end of the Whitehorn Range, a splendid glacier trip. Whitehorn Pass and a glacier pass south of Whitehorn were ascended, the latter leading down to Lake Kinney by an apparently easy route.

"It rained nearly every day. Getting up to the high camp, a log was placed across the river. It was there in the evening of the day before the party left, but gone when they came down. There had been a big fall of ice from the glacier, probably blocking the stream, for ice was found six miles down the river. The glacier was active, and much of the ice fell directly into the stream near the top, so that the water at the end of the valley was half ice. The party had to find a place where the river divided into three parts and wade the very rapid current filled with blocks of ice.

E. W. D. Holway.

MT. NORQUAY

Mr. Greenham sends a most interesting account of an ascent of Mt. Norquay at Banff, "the modest looking two-ridged mountain, between Stony Squaw and Mt. Edith."

The mass consists of two distinct wings connected by a very high and steep col at their northern ends. The western ridge is slightly the higher, but the eastern the more interesting. The rock is remarkably sound and solid.

Leaving the motor road at the northwest corner of the second of the Vermilion Lakes, just across a little rivulet, the climber, slanting northwesterly, soon reaches the pine-clad western buttress of the eastern ridge, where the ascent begins. The buttress presents a succession of varied face-climbs all the way. After a thousand feet or so, a small crag is reached, on the top of which, lashed to a stunted tree, waves a storm-worn Union Jack. Across a little dip rises, apparently perpendicularly, the first real pitch, but the going is good and the trees afford excellent anchorage. The ridge, narrowing, ends at the foot of a tower of huge slabs and masses of rock, presenting a sheer wall in front.

"We closed with the wall and presently struck a narrow ledge on the west side of the tower leading slightly upwards. . . . . In a hundred feet or so it ended abruptly at a last stunted pine, thrusting out from a narrow crack like a captive's arm from a high loophole in some castle keep. There was no road but the crack. The pine made a perfectly safe anchor, however, and thirty feet of rope was sufficient to reach another consisting of a fragment of rock jammed into the cleft and overhanging rather awkwardly. Above this the chimney grew easier, and presently the leader's head emerged above the roof."

From this point there was nearly level going for perhaps a quarter of a mile to the foot of the last tower, about forty feet high, and perpendicular, but having a convenient outside staircase sloping up to the left. This ended in a wide chimney, from which one emerged on the summit. Time from road to summit going leisurely about four hours.

Probably the quickest way back to Banff would be to drop over the eastern ridge and make for the Cascade Mountain bridle path but this might mean trouble among the burnt timber. An interesting route for a strenuous party would be to follow the craggy ridge northerly to the col, thence along the western wing and down to the road near the Mystic Lake trail.

Mr. Greenham chose a middle course, starting straight down the west side into the ravine, by the screes. The screes soon ended in crags and gullies which gave some interesting climbing and led to the torrent bed descending from the col to the road.

THE "BLAZE" BY THE WHIRLPOOL RIVER

In his interesting article on "The Whirlpool," in the Journal for 1914-15 (page 84), Mr. G. E. Howard tells of finding an ancient blaze on a tree near his camp pitched not far from the forks of the North and South Whirlpool. Here it is:

J. M.
W. C.
H. A. T.
H. S.
Oct. 20
'53

Probably he thought this an unsolvable mystery but after all a mystery is only a secret revealed to the initiated and we are now initiated.

Mrs. J. A. Wilson, of Ottawa, formerly Miss Tuzo, the well known climber after whom Mt. Tuzo, No. 7, of the Ten Peaks, is named, one of our original members, wrote this spring saying, "I am convinced that H. A. T. is my father who went overland in '53 and would pass about October. He was then a youth and went over with the annual Hudson's Bay party. Sir George Simpson used to offer a post to the gold medallist at McGill and that year it was my father, Henry A. Tuzo."

Through the kindness of Mr. Thomson, of the Hudson's Bay Company, we learned that no record was kept of the personnel of the parties who went west in the early days. The only hope was to look up the register of the "Engaged Servants" for that year. The name Henry A. Tuzo appears in the list of Oregon and West Department Servants for 1853-4—evidently he was engaged in the year 1853. It is probable also that this was his first year of service, as there is no balance carried forward in his account. The other initials probably refer to:

J. M.—James Murray.
W. C.—William Calder.
H. S.—Cannot be traced.

It is interesting to note that the accounts of these three men, H. A. Tuzo, James Murray and William Calder, are each debited with the sum of threepence for postage in 1853.

Who was H.S.?

NEW NAMES

By rulings of the Geographic Board of Canada

The name of the great mountain to the north of Mt. Robson has been decided by the Geographic Board. Miss Jobe called it Mt. Kitchi, Mr. S. P. Fay called it Mt. Alexander after Sir Alexander Mackenzie, the great explorer. It is finally named Mt. Sir Alexander on the analogy of Sir Donald and Sir Sandford.

To obviate confusion, the names of the mountains known as White and Black Douglas have been changed by the Board. The Black Douglas is now Mt. Douglas; the White Douglas is now Mt. St. Bride. St. Bride (or Bridget) was the patron saint of the Douglas family. The mountain was named after David Douglas, the botanist and traveller.

The name of Mt. Edith Cavell for the false Mt. Geikie has been finally established.

Gould's Dome in the Crows Nest region has been changed to Tornado Mountain. The former Tornado Mountain is now Gould Dome.

THE TOBACCO FUND

On New Year's Day an appeal was made to members of the Club in aid of the Overseas Tobacco Fund, which does so much to ease the lot of the soldiers at the front. In spite of the fact that every one is giving generously to the many war funds, the sum of $251.45 was raised and sent to the fund, with cards of greeting which were enclosed in each parcel of tobacco, that the recipient might know it was from the Alpine Club of Canada.

REVIEWS

The Building of the Alps—By T. G. Bonney, D.Sc., F.R.S., etc.*

Dr. T. G. Bonney's masterly work, "The Building of the Alps," has been presented to the Club by Mr. John Brunner. It is a history of the European Alps by one who made them a life-long study, and is a valuable gift.

Although dealing directly with a chain of mountain ranges of a distinctly different geological formation to the Canadian Rockies, a study of it will be found most instructive with regard to the formation of mountains the world over, and of their original construction from the primary folding of the earth's crust; it shows how such folding was gradually carved in to the very striking and wonderful shapes seen in the various mountain regions of the globe.

The first five chapters are more particularly of local significance, but Chapter VI on "The Making and Movement of Glaciers" is a very valuable treatise, applicable to all mountain elevations where glaciers are found. It enables the student visiting the Canadian Rockies intelligently to understand the formation and action of the splendid masses of snow and ice seen there in such abundance, and to comprehend the varied individual features of interest in connection with them, such as, firns or névés, ice structure, snow pock-marks, dirt bands, glacier tables, sand cones, moraines, etc. The description of the making of moulins, giant kettles and roches moutonnées is especially interesting.

Chapter VII contains a discussion of the theories of the old and new schools concerning the making of peaks and valleys, cirques, ridges and passes, and of the respective qualifications of water and ice as the chief constructive agency. The examples quoted are found in the European Alps, but the principles involved apply to every mountain area.

Chapter VIII is of especial interest, owing to its description of the creation of earth-pillars, or "Hoodoos," as they are known in the Canadian Rockies. The reference to caves and underground passages of subterranean streams also finds a parallel, and the discussion of ice-caves or "glacières" describes a feature that is not unknown to Canadian mountaineers.

Chapter IX, dealing with "Avalanches and Floods," strikes a kindred note in its description of the cause and effect of snow-cascades, ice-falls, or rock-falls and mudslides.

Chapter X on "Alpine Meteorology," which deals with atmospheric rarefaction and the consequent effects, more commonly described as mountain sickness, is most interesting. In the same chapter the references to cloud phenomena recall similar examples in the Canadian Rockies. The notes on thunder and electrical storms relate experiences with which our mountaineers are well acquainted, although not in such an aggravated form as the author experienced

*T. Fisher Unwin, London, England and Charles Scribner's Sons, 1912, $3.75 net.

in the Chapel of Cà d'Asti, which must have been a unique and truly terrifying experience.

All the remaining chapters are more directly of local application and complete a history of intense interest and valuable instruction to students of mountains, and particularly of the European Alps.

The many years over which the studies of the various subjects embodied here have been spread and the special scientific and literary qualifications of the author have enabled him to set forth his facts and deductions in a manner that leaves nothing to be desired. Armed with a previous knowledge of the geography of the Alps and of this delightfully instructive work, a visit to the grandly historic mountain region it describes can be thoroughly appreciated and enjoyed.

The volume contains forty-eight reproductions from photographs and sketches by well-known travellers and mountaineers. They serve to illustrate the text most graphically and many are of high artistic value. Several of the most striking are by the late Dr. Tempest Anderson, a life member of the Alpine Club of Canada.

A. O. Wheeler.

Chronicles of the White Mountains—By F. W. Kilbourne*

Assuming as true the dictum of Allen H. Bent in his "Bibliography of the White Mountains," quoted by Mr. Kilbourne in his Preface: "The White Mountains have had more written about them, probably, than any other mountains, the Alps alone excepted," this latest addition to that bibliography, by Mr. Kilbourne, deserves and will undoubtedly win a most important place in the literature of that region. It represents the most complete treatment of the story of human life and endeavour in that little corner of Yankee Land, an area of much smaller extent than the space included in the Big Bend of the Columbia River in British Columbia.

Always paying graceful and ample, but discriminating, tribute to the most notable books that have preceded him, such as Drake's "The Heart of the White Mountains," Starr King's "The White Hills," and the distinctively tourist guide-books, he treats in systematic detail the various phases of the struggle of civilization to gain and maintain a footing in that wilderness, to discover and make available for intellectual, aesthetic and physical enjoyment of mankind the resources of that most attractive region.

His first chapter, devoted, as befits a book of Chronicles in America, to "Indian Legends and History," bids fair in its opening pages to resemble the famous chapter of "Owls" in the "Natural History of Iceland;" for the early civilized settlers among the White Mountains appear to have known little and cared less about the legends and life of their rude neighbors, and so they took but little pains to record what they did know. But three of the Indian chiefs have found a place in literature, and as the mountains Passaconaway, Kankamagus and Chocorua charm us by their beauty and stateliness, so the Indians who bore these names win our regard by the story of their life.

Mr. Kilbourne gives us a graphic account of the early explorers of the "Chrystall Hills," of the obstacles to their progress presented

*Boston: Houghton Mifflin Co.

by the pathless forests to thread, by the rocky walls to climb, by the superstitious fears of their Indian guides, and of the enthusiastic success of Field, of Josselyn, of Dwight and of Belknap, and many in later years, in penetrating the heart of this wilderness. With him we watch the first settlers and their rude cabins and the hardships of their secluded life and we wonder at the spirit and endurance of the Crawfords, the Rosebrooks and the Willeys, whose names figure so prominently in the records of the eighteenth century.

Two chapters tell of the coming of noted American and foreign visitors to the White Mountains and of their published description of what they saw there. One chapter deals with the early hotels and the beginnings of the region as a summer resort. Then a chapter is devoted to the poets and painters who found inspiration in the scenery of the White Hills and got fame by their treatment of subjects discovered there.

Turning to a material side of life, he tells us, in full detail, the story of the roads that made the summit of the highest peak, Mount Washington, accessible to the thousands of tourists who otherwise would never have stood on that noble outlook, and of the various shelters and hotels built on its crown and on the crests and sides and nooks of many of these mountains.

To those who can recall the routes of approach available fifty years ago, his chapter on "The Coming of the Railroads" reads almost like a romance. His pages on "the Scientific Exploration of the Mountains" and his account of the occupation of the summit of Mount Washington by a station of the United States Signal Service presents a line of activity appealing but slightly to the ordinary summer tourist, but eminently worthy of a place in these chronicles. But his "Winter Ascents of Mount Washington and Mount Moosilauke" describes scenery and experiences that are amply suggestive of Alpinism in our Canadian Rockies; while his "Casualties on the Presidential Range" and "Some Destructive Landslides" are sufficiently tragic to produce a wholesome respect for these mountains in one who would trust too much to their sometimes benevolent aspect.

In the chapter on "Early Trails and Path-builders" and "The Appalachian Mountain Club and its work in the White Mountains," he pays a fitting tribute to an organization that has done more than all other agencies to extend a knowledge of that region and make their attractions available to lovers of mountain scenery and life. In this connection it seems fitting to make this criticism on Mr. Kilbourne's treatment of this part of his subject, viz., that he, inadvertently, fails to give full credit for the admirable conduct of Appalachia, the magazine of the Club, to the able management of Prof. C. E. Fay, one of the founders of the Club, probably its most prolific writer on mountaineering matters, and editor of the publication during all but the very earliest part of its existence of nearly forty years.

In one chapter the author deals with the lumber industry in the White Mountains, the consequent peril to the existence of the forests, the establishment of the White Mountain National Trust Reserve and other scenic reservations, the latter mostly the property of the Appalachian Mountain Club.

The volume contains about thirty illustrations, some of them engraved reproductions of somewhat famous paintings of scenery

and incidents, but most of them from photographs of scenery or hotels. There is a clear map of the White Mountain area, showing the water courses, the railroads and the highways, the inhabitated centres and the location, by tiny triangles, of all the more conspicuous summits. This map is repeated at each end of the volume on the inside of the cover and the adjacent flyleaf where it can be most conveniently consulted. The book contains one other map on a small scale, showing the location and comparative extent of the various sections of the White Mountain Forest Reserve.

The volume, a large duodecimo of 432 pages, is printed on unglazed paper, restful to the eye and light to handle, two important considerations for the comfort and convenience of the reader.

F. W. Freeborn.

David Thompson's Narrative of His Explorations in Western America, 1784-1812—Edited by J. B. Tyrrell*

"From time to time God causes men to be born who have a lust to go abroad at the risk of their lives and discover news—to-day it may be of far-off things, to-morrow of some hidden mountain." Of such men was David Thompson, fur trader by chance, geographer and surveyor by right of nature. In these post-Darwinian days, when the descent of a great man is considered almost as interesting as that of pedigree cattle, it is remarkable that nothing is known of Thompson's parents beyond their names. There was a family legend that he was of Welsh descent. Born in Westminster in 1770, when he was seven years old he entered the Grey Coat School. There he seems to have been thoroughly well educated, stress being laid on mathematics and navigation and, evidently from his writing, instruction in the noble English tongue was not forgotten as it too often is to-day. In 1783 the Hudson's Bay Company enquired if the school could furnish it with four boys for the settlements in America. As a result David Thompson was apprenticed to the Company in the following year, and his life's work began.

He sailed from London on the company's ship the Prince Rupert for Hudson's Bay and landed at Fort Churchill, where he spent the winter under Samuel Hearne, from which noted traveller he must have gained both instruction and inspiration. After a few years spent in the routine of the fur trade, he began to keep careful meteorological records, and also, from astronomical observations, located accurately the position of Cumberland House. "Such," says Mr. Tyrrell, the well known geological surveyor, "was the beginning of his long career of geodetic surveying, which was to make him the greatest practical land geographer that the world has produced. Very few men have had the opportunity of exploring the half of a great new continent, and no one else has ever seized the opportunity as David Thompson did. For many thousands of miles . . . it was my good fortune to travel over the same routes that he had travelled a century before, and to take observations on the sun and stars on the very spots where he had observed, and, while my instruments may have been better than his, his surveys and observations were invariably found to have an accuracy that left little or nothing to be desired." It is interesting to note that Thompson's sextant was made by Dolland, a firm still in existence and supplying field glasses to the men in the trenches to-day.

*The Champlain Society, Toronto.

In 1797 Thompson, satisfied that the Hudson's Bay Company would allow his geographical talent no scope, left its service and joined the North-West Company, which was then controlled by men with larger and more progressive ideas. Congenial spirits associated with him in this company were Roderick Mackenzie, a cousin of Sir Alexander and the author of "The History of the Fur Trade," and Simon Fraser, who afterwards descended the Fraser River, and named the Thompson Rivers after his friend.

His first work under the new employer was to determine the position of the 49th parallel of latitude, which had been decided on as the boundary between the United States and British North America. In 1799 he extended his surveys to the Athabaska River and while at Isle à la Crosse married a half-breed girl, Charlotte Small, a marriage which seems to have been in every way happy.

In 1804 the North-West and the X. Y. Companies united their forces and decided to extend the trade into the country west of the Rocky Mountains, spreading over what is now British Columbia, and the States of Idaho, Washington, Oregon and the western portion of Montana.

Time fails to tell of his work. He travelled the Columbia from its source to the sea; he discovered the Howse and the Athabaska Passes; and the source of the Mississippi; he surveyed the International boundary from St. Regis in Quebec to the northwest angle of the Lake of the Woods, and he made a map which is standard to this day. He was a most successful fur trader, a naturalist and a keen student of Indian manners and customs.

In 1812 he went to Montreal and never journeyed west again. At first he seems to have been comfortably off, working on his map and surveying; but latterly he fell on evil days. He lost money, his sons lost money, and then his eyesight went. "He was so poor that he had to sell his instruments and even to pawn his coat to procure food for himself and his family."

He died at Longueuil in 1857 in his eighty-seventh year. His wife and he lie buried in Mount Royal Cemetery at Montreal, without a monument. A great man, too little known, whose work remains.

This edition of the Narrative is published by the Champlain Society. It is needless therefore to say that it is a delight from every point of view. The editing is thorough, the printing is clear, the book lies open and is not too heavy to hold and the illustrations are pertinent. Thompson's map is reproduced on a somewhat reduced scale, and there are coloured reproductions of three of his water colour sketches of the mountains.

S. H. Mitchell.

A Thousand Mile Walk to the Gulf—By John Muir*

This is rather a book for the lover of John Muir than of the mountains or of botany. It is pleasingly written and will help to pass intelligently an idle hour.

In 1867 Muir started on a walking trip from Indiana to Florida, intending to go thence to New Orleans and so to South America,

*Boston: Houghton, Mifflin Co., $2.50.

traverse the untravelled jungle and make his way on a raft down the Amazon to the Atlantic. Fever seized on him in Florida and prevented his completing the wild scheme. Instead he made his way to California which became the home of his heart.

Apparently the ways of men interested him but little. Plants and trees were his friends and humanity but a necessary adjunct. The Civil War had ended two years ago and the country was in an unsettled condition. On his way through the back country Muir, who could not have given the impression of wealth, was several times attacked by roving white men and negroes, but fortunately escaped all hurt. At such a period a man travelling as he did was naturally looked upon with suspicion and householders were not willing to entertain him. The travelling student was not as well known in those days as at present. People were needed on the farms and students were regarded as idlers.

When he reached Savannah he found the expected remittance had not arrived at the Post Office and for a week he lived upon a dollar and a half. This was insufficient even to procure sufficient food, and he bivouacked in the beautiful Bonaventure Cemetery about four miles from the city. He built himself a bower among the bushes, with a roof of rushes and a bed of moss, and enjoyed the company of the squirrels and the birds.

From Savannah he took steamer to Fernandina, Florida. The salt tang of the sea, the rocky coast, recalled his early youth and the neighbourhood of Dunbar and the Bass Rock. The memory evidently haunted him as he records it on several occasions in his diary. "How imperishable," he says, "are all the impressions that ever vibrate one's life! We can forget nothing. Memories may escape the action of will, may sleep a long time, but when stirred by the right influence, though that influence be as light as a shadow, they flash into full stature and life, with everything in place."

Florida was not a disappointment and his first sight of a palmetto was an inspiration. "Whether rocking and rustling in the wind, or poised thoughtful and calm in the sunshine, it has a power of expression not excelled by any plant, high or low, that I have met in my whole walk thus far." And some people find it soulless compared with a spray of northern pine! How different again is the northern forest with its dappled shade. "In the dense Florida forests sunlight cannot enter. It falls on the evergreen roof and rebounds in long silvery lances and flashy spray. In many places there is not light sufficient to feed a single green leaf on these dark forest floors. . . All the flowers, all the verdure, all the glory is up in the light."

The alligator suggests to him that the philosophy of the period, long exploded, that everything is specially created for the benefit of man is neither just nor reasonable. The gospel of Wallace and Darwin had not yet spread over the earth.

After a prolonged attack of malarial fever at Cedar Keys, he made his way to Cuba, one of his "happy dreamlands." Ill-health prevented his penetrating far into the interior of the island, to his great disappointment, but he found much of botanical interest in the immediate neighbourhood of Havana.

Here really ends the journey, but the book continues the account of Muir's wanderings until he reached California and the Delectable Mountains. There his real life's work began.

S. H. Mitchell.

*Trout Lore—By O. W. Smith

Perhaps the stories of the fisherman, of all sportsmen, are the pleasantest reading for the ordinary wayfaring man who knows not the art. Our author rightly says, "Every true angler is an embryonic poet, feeling things which he cannot express, seeing things which he cannot describe. He who fishes for fish is not an angler but a mere fisherman." His is the true sportsman's philosophy; a day ending with an empty creel may have held finer sport than that famous experience of Mr. Briggs when they "flew at me, barking like a dog." The line of Herrick sums it up: "It is the fight that crowns us, not the end."

The author starts to "justify trout's way to man," but it is a difficult problem for their ways are variable as an April day. He gives a curious account of a speckled trout he once caught which was a brilliant silver when taken but at night could not be singled out from others in the creel. Those who have seen the herring in the net, brilliant with rainbow hues and the same fish a few hours later, when they are merely silvery white, will understand.

Naturally, there is a chapter on the effect of weather. Every one has his pet superstition, but there are perhaps two misunderstood points mentioned. He differs with Walton in his objection to the east wind. Now Walton spoke of the east wind as he knew it in England coming over the North Sea from the fens of Holland and the cold Jutland moors—raw and cold always. In the United States this does not necessarily follow. Again there is a prejudice against fishing in a thunderstorm, but is this rightly expressed? Our author, like many another fisherman, has had splendid sport when the waves on the loch are high, and the thunder is roaring. Surely the bad time is the hour before the storm, when the air is heavy, and everything seems dead, and the fish sink to the bottom and will not rise, charm one never so wisely.

"Trout are pre-eminently the fly-fisherman's fish." True, but we hear nothing of the "Sea" or "White Trout," which yield as fine sport as any fish that swims. Let him who has fished from a boat or in waders at the mouth of one of those Scottish or Irish streams, where its clear sherry-coloured water—if any one is left who knows what sherry is—mingles with the sea, when the trout are rushing up, bear witness.

"Fish fine and far off" is the golden rule but, like other golden rules, is not easy to follow. For inland streams and in fact generally, the dry fly is to be preferred. "The best short description of the difference between wet and dry-fly fishing is that which describes the first as 'fishing the stream,' and the second as 'fishing the rise'."

Objection has been raised to spinning for trout. Mr. Smith rightly says, "That one method of fishing is in itself more sportsmanlike than another is a fallacy . . . Sportsmanship is the spirit of fair play raised to the *n*th power, a willingness to give and take and keep sweet the while." "The way of a trout with a spinner is as the way of a man with a maid, always different."

The question of tackle and, above all, of flies, is absorbing. It is rather amusing to hear a presumably good democrat state, "It is a good idea to have a few abbeys, coachmen, royal coachmen, and

*Frederick A. Stokes Co., New York, $2.00.

professors." Of other lures it is well said, "I cannot see how a man violates the ethics of true sport, when he rightly employs" the modern lures. Of course the word "rightly" begs the whole question.

The book includes many valuable hints on tackle and the different branches of angling, including instructions in fly-tying, perhaps one of the most delicate of arts.

The book is full of "pointers" written by a fisherman who loves the game, but it is not one of that annoying class which gives a few recipes and a little gush and calls it a book. The enjoyment is genuine as the knowledge, and the fresh air breathes through it. Surely, however, it is time that a close season was started for some overworked phrases as well as for fish. Many of us are wearied of "'God's Out o' doors," second rate sentiment at the best of times, and hope never to see it again. The art of the angler includes a wise simplicity.

The book is nicely printed and illustrated by commonplace half-tones. A few wood-cuts or etchings giving some of the spirit of the letterpress would have been more effective. A grave fault is the absence of an index.

S. H. Mitchell.

OFFICIAL SECTION

REPORT OF HEALY CREEK CAMP

The eleventh annual Camp of the Club was held in the Healy Creek Valley, not far from the summit of Simpson Pass, from July 13th to 31st. It was pitched in an open glade, well protected by trees, somewhat similar to the site of the Sherbrooke Lake Camp in 1911. An innovation in the journey to Camp that was much appreciated was the trip by motor launch from Banff up the Bow River to the landing at the beginning of the new trail from the river bank to the old Simpson Pass trail. In future it is probable that many travellers to Mt. Assiniboine and Simpson Pass will arrange for their ponies to meet them at this landing and cut out some miles of trail of no particular interest.

The trail passed the great "hole in the wall" penetrating the mountain opposite Mt. Bourgeau, through which the clouds could be seen scudding over the sky on the other side of the range. This is mentioned by Sir George Simpson, after whom the pass is named, in his "Voyage Round the World."

A subsidiary camp was placed among the larches besides Bill Peyto's Lake, near the summit of Simpson Pass, which commanded a fine view of Mt. Monarch and other peaks, and from which many of the most interesting expeditions started.

Owing to persistent war conditions the Camp was naturally a small one, 82 being placed under canvas. However, the vitality of the Club was maintained, and enthusiasm spread among new members, to whom the secrets of the mountains were revealed.

Those present at the Camp were drawn from the following places:

CANADA

British Columbia: Cameron Lake, Kelowna, Rossland, Sidney, Vancouver, Victoria, Wilmer.
Alberta: Banff, Calgary, Edmonton, Lethbridge, Vermilion.
Saskatchewan: Regina.
Manitoba: Winnipeg.
Ontario: Berlin, Hamilton, Ottawa, Toronto.
Nova Scotia: Windsor.

UNITED STATES

Illinois: Chicago, Galesburg.
Indiana: Lafayette.
Maryland: Annapolis.
Massachusetts: Boston, Brookline.
New York: Brooklyn, New York.
Washington: Seattle.

SWITZERLAND

Interlaken.

There were present members of the English, Swiss and American Alpine Clubs, of the Appalachian Mountain Club, of the Mazamas and the Mountaineers, of the Royal Geographical Society and the Linnaean Society.

THE ANNUAL MEETING

The annual meeting was held at the Camp Fire on the afternoon of July 20th. In the absence of the President and the Vice-Presidents, the Director took the chair.

The address of greeting from the President, Mr. J. D. Patterson, was read, expressing regret at his unavoidable absence, and exhorting members to maintain their loyalty to the Club, which must be preserved in full efficiency until the members fighting on behalf of the Empire return. The President also suggested that the precedent of 1915 be followed and that an appreciative message be sent from the meeting to members on Imperial War Service.

Communications were read from the President, Captain (now Major) W. W. Foster, Mrs. C. H. Mitchell, Dr. N. Collie and Mr. R. Douglas, secretary of the Geographic Board of Canada, expressing keen regret at being unable to be present and great enthusiasm for the welfare of the Club. Mr. Douglas announced that the name of the mountain south of Jasper, erroneously called Mt. Geikie, had been changed to Mt. Edith Cavell.

The Director's report was then submitted, giving an account of the history and standing of the Club during the past year. He detailed the noble work of the members at the front, and urged those at home to stand by the Club and enable it to carry on its good work to the ultimate goal.

The Hon. Treasurer wrote saying that the financial standing of the Club was satisfactory, but that it was important that annual fees should be paid promptly. He stated that since the annual statement was published debentures to the amount of $410 had been returned to the Club.

The Secretary-Treasurer reported the Club's membership as smaller, but stated that new members were coming in and that the enthusiasm was unabated.

The result of the ballot for Officers for the ensuing two years was then announced. Major Stanley L. Jones had been elected President, but, owing to his lamented death through wounds received on active service, the former President, Mr. J. D. Patterson, in accordance with the Constitution, has consented to carry on the office.

A resolution of sympathy and encouragement was passed to be sent to every member engaged on Imperial Service.

A resolution of sympathy with Mrs. Stanley L. Jones was passed.

The meeting expressed its regret at the enforced absence of Professor F. W. Freeborn, who, until his illness prevented him, had been at every camp held by the Club and whose albums of photographs in the Club library, were an abiding joy.

Votes of thanks were passed to the Dominion and Alberta governments for their appreciative financial grants to the Club, which enabled it to carry on its useful publicity work.

The officers of the Club, whether retiring or re-elected, were tendered a hearty vote of thanks for their untiring labours in the service of the Club.

Votes of thanks were also passed to the railway companies for their assistance in the matter of rates, and also to Mr. F. L.

Hutchinson, of the C.P.R. hotel department, for the loan of the Swiss guides.

Captain W. J. S. Walker was tendered a vote of thanks for his great kindness in refurnishing the medicine chests which he had presented to the Club and which were of much service.

A vote of thanks was also passed to the Camp and Club House staff in recognition of their assiduous and unselfish labours.

The meeting then adjourned.

EXTRAORDINARY MEETING

At the request of Colonel C. H. Mitchell, Vice-President of the Club, on service in France, an extraordinary meeting was called on July 27th. It was held at the Upper Camp from the hour of noon until one o'clock to synchronize with one to be held by members at the front.

The occasion was a solemn one. The green alpine meadows stretched on all sides to Mount Monarch, distant Assiniboine and stately Ball rearing its glacier crowned head above Shadow Lake.

The Director presided, stationed in front of the Union Jack. As he spoke of the purpose of the meeting and contrasted the peaceful surroundings with the turmoil of battle, Nature, with that dramatic touch she often shows, sounded Heaven's artillery; the lightning flashed and the thunder roared and echoed among the mighty mountains. After the thunder came a solemn silent space, when for five minutes the members present concentrated their thoughts upon the members on active service at the front.

A motion of sympathy and encouragement was passed and signed by the Director, Secretary-Treasurer, C. A. Richardson as General Manager of the Camp, and by Mrs. C. B. Sissons, on behalf of the ladies.

As the meeting closed the sun shone brightly, the sky was blue and all around was peace.

REPORT ON MOUNTAINEERING AND EXPEDITIONS

Mt. Monarch was the most interesting ascent within comfortable reach. Mt. Brett and the middle peak of the same range were also ascended. Mt. Bourgeau failed to attract.

Excursions radiated in every direction, the most popular being one to Shadow Lake, via Haiduk Pass and returning by the northern shoulder of the Pharaoh Peaks. Shadow Lake is one of the most beautiful of the many beautiful lakes in the Rockies. From its western end the precipices of Mt. Ball rise sheer, the avalanches from the snow-capped crown fall continuously into the lake of peacock blue, and the soft green of the embosoming pines completes the harmony. On the way Egypt and Mummy Lakes were passed. Around the former the alpine flowers were in waves of bloom; the latter, a mountain tarn, showed bleak, barren and lonely.

The professional guides were Christian Jorimann and Christian Hasler. Mr. A. H. MacCarthy brought Conrad Kain with him and placed him at the disposal of the Camp authorities on several occasions.

Fifteen passed the test for active membership. Their names are given on the following page.

Mt. Brett, July 18th
E. G. Ritchie

Mt. Monarch, July 19th
Miss L. McPhedran
Miss E. Watt

Middle Peak, July 20th
Miss A. M. Cross
Miss J. Ellis
W. H. Fernie
C. S. Sheldon

Mt. Monarch, July 21st
Miss E. Anderson
Miss J. M. Hearns
C. G. Wates

Mt. Monarch, July 27th
J. W. Atkins
Miss I. DeBursey
P. R. Brecken
Mrs. M. Frazer

Mt. Monarch, July 28th
Miss K. Robinson

THE CLUB LIBRARY

There have been many additions to the Club library during the year, some of great interest. A list with notes is subjoined.

Mr. F. W. Freeborn, an Original and Life member, has presented the Club with an album of selected views for each Camp attended by him since 1906, when the first Camp was held at the summit of Yoho Pass by the emerald-green waters of the Yoho Lake.

From that first Camp to the end of the Cathedral and Robson Camps in 1913, Mr. Freeborn was a constant attendant and considered it among the greatest joys and privileges of his life to be able to be present at these annual gatherings around the great Camp fire. It was while on his way to attend the Upper Yoho Camp in 1914 that he was stricken by an illness which has since deprived him of the ability to attend and thereby has caused him a life-long regret.

How well we remember the Dean of the New York Corps, with his stalwarts gathered around him in quarters at each Camp, and how keen and enthusiastic they all were under the competent leadership of their chief.

Subsequent to the building of the Club House at Banff, never a year passed without seeing this veteran mountaineer in quarters at No. 5 Tent-house, the highest on the hill, preparing for his summer's campaign in the mountains.

Much as he may regret his inability now to attend the annual Camps, he may rest assured that quite as deep regret is felt by his old comrades, who greatly miss his fine personality as a man and a mountaineer, and his powers of cheery entertainment around the camp fire.

The album is a very valuable presentation as a record of the Camps held within the years mentioned. The photographs selected are all of the choicest scenic beauties presented by the several localities to which they relate, and, perhaps, the most striking feature of the collection is the increased excellence in results from year to year, climaxing at the Cathedral and Robson Camps, the last two attended by Mr. Freeborn.

The many groups of familiar faces that are presented for each Camp give the collection a personal attraction that makes it doubly welcome. The album closes with a number of views of the exterior and interior of the Club House, and of scenic beauties in the vicinity.

As a sample of the alpine attractions of the Canadian Rocky Mountains, it is a truly wonderful collection, and the Club may well express its deep appreciation and sincere thanks to Mr. Freeborn for the camaraderie and kindly feeling that prompted this very valuable gift, to him a work of love.

The usual exchanges have been received. "La Montagne," the Journal of the French Alpine Club, is now published quarterly. We confess to finding the most interesting pages those of "Le livre d'or," containing succinct accounts of their heroes and their work at the war. "L'Echo des Alpes" contains articles of more general interest than formerly. Our American members will be interested in an article on the Adirondacks in the January number. A sentence in the Annual of the Société des Touristes du Dauphiné in reviewing The Alpine Journal somewhat surprises us. Alluding to articles on climbing in remote countries, it says "*Ces exploits lointain ne sauraient nous interesser.*" Why should not the inhabitants of the ancient province take an interest in the wide world? We greatly appreciate the gracious references to our Club members on Imperial service which appear in The Alpine Journal and the Scottish Mountaineering Club Journal. These maintain their usual high standing which it were superfluous to praise.

The American magazines contain much of interest. South Africa and Japan send welcome magazines which keep us in friendly touch with those far countries. The Yearbook of the Swiss Club appears again, combining in one the years 1914 and 1915. As usual, it is full of information and beautifully illustrated.

Mrs. A. O. Wheeler kindly gave an afternoon tea service and some flower vases to the Club House; a useful and much appreciated gift.

Mr. H. O. Frind has presented three large framed photographs which now adorn the walls of the Club House and are greatly admired. Mr. Bent has presented a book of photographs of the neighbourhood of Banff and Miss J. L. McCulloch has kindly made up an album of photos of the last two camps, presenting also some cushions and a charming flower basket.

Under war conditions the Club has no resources to expend on the library. It would be very grateful for gifts of books. The Secretary-Treasurer will be glad to give any information about books desired, or whether suggested books have already been presented. Some more book cases to match those already in the library are badly needed. Perhaps a few friends might club together and give a section. Thus the cost would not be very onerous.

The list of additions follows:

Appalachia. Index to Vols. I-X. Donor, Appalachian Mountain Club.

The Book of the Machine Gun. By F. V. Longstaff and A. H Atteridge. Pub. Hugh Rees, London. Donor, Major F. V. Longstaff.
This book may be summed up in one word, "Thorough." Probably for many years to come it will be indispensable to every one interested in gunnery.

The Book of Forestry. By F. F. Moon. Pub. D. Appleton & Co., New York. Donor, LeRoy Jeffers.

A popular book which it is hoped may bring the average man to understand how to use and not abuse the great assets of the forests.

The Boys' Book of Hunting and Fishing, The Boy's Book of Canoeing and Sailing. Both by W. H. Miller. Pub. G. H. Doran Co., New York. Donor, LeRoy Jeffers.

The Building of the Alps. By T. G. Bonney. Pub. T. Fisher Unwin, London, England, and Chas. Scribner's Sons, N.Y. Donor, J Brunner. Reviewed on a previous page.

Camping and Woodcraft. Vol. I. By H. Kephart. Pub. Outing Co., New York. Donor, LeRoy Jeffers.

Touring Afoot. By C. P. Fordyce. Pub. Outing Co., New York. Donor, LeRoy Jeffers.

Equipment for Mountain Climbing and Camping. By A. H. Bent, R. Lawson and P. Sayward. Pub. Appalachian Mountain Club, Boston. Donor, A. H. Bent.
These three books contain advice and many recipes of varying value for campers. The last, a booklet of 28 pages, contains much information in short compass and will appeal more to mountaineers than the other two.

The Canada Year Book. Pub. King's Printer, Ottawa. Donor, P. A. Taverner.

Chronicles of the White Mountains. By W. F. Kilbourne. Pub. Houghton Mifflin Co., Boston and New York. Donor, LeRoy Jeffers. Reviewed on a previous page.

The Complete Mountaineer. By Geo. D. Abraham. Pub. Methuen & Co., London. Donor, J. W. A. Hickson.
The author disclaims the possibility of completeness, but his book is a valuable storehouse of information, written in the characteristic Abraham style, and generously illustrated from fine photographs.

In Canada's Wonderful Northland. By W. T. Curran and H. A. Calkin. Pub. G. P. Putnam's Sons, London and New York Donor, LeRoy Jeffers.
A somewhat diffiuse account of a trip made in 1912 from Missinaibi, Ontario, to Hudson's Bay and along its eastern shore to Clarke Island, with the object of investigating the natural resources of the country. Minerals, pulp, wood and water power are the most important finds, and, in the neighbourhood of James Bay, some excellent agricultural land.

5,000 Facts About Canada. By Frank Yeigh. Pub. Canadian Facts Pub. Co., Toronto. Donor, the Author.

Mt. Rainier. Edit. by E. S. Meany. Pub. Macmillan Co., New York. Donor, LeRoy Jeffers.
A series of articles which would form valuable foundations for a book on Mt. Rainier. What such a book may be Guido Rey's "Matterhorn" shows. A map of the mountain and its surroundings would have been more valuable than the portraits of the various authors.

Wild Flowers of the N. American Mountains. By Julia W. Henshaw Pub. Robert M. McBride & Co., New York. Donor, the Author
An enlarged edition of the former issue, illustrated by beautifully tinted plates as well as half-tones.

Peaks and Precipices. By Guido Rey. Pub. T. Fisher Unwin, London. Donor, J. W. A. Hickson.
Reviewed Can. Alpine Journal, Vol. VI. Page 242.

David Thompson's Narrative of his Explorations in Western America. Edit. J. B. Tyrrell. Pub. Champlain Society, Toronto. Purchased.
Reviewed on a previous page.

Rambles in the Vaudese Alps. By F. S. Salisbury. Pub. E. P Dutton & Co., New York. Donor, LeRoy Jeffers.

Sport, Travel and Adventure. By A. G. Lewis. Pub. T. Fisher Unwin. Donor, Mrs. H. J. Parker.

A Thousand Mile Walk to the Gulf. By John Muir. Pub. Houghton Mifflin Co., Boston. Donor, LeRoy Jeffers.
Reviewed on a previous page.

Trout Lore. By O. W. Smith. Pub. F. A. Stokes Co., New York. Donor, LeRoy Jeffers. Reviewed on a previous page.

Twenty Years in the Himalaya. By C. G. Bruce. Pub. Edward Arnold, London. Donor, J. W. A. Hickson.

Woodcraft for Women. By Kathrene G. Pinkerton. Pub. Outing Co., New York. Donor, LeRoy Jeffers.
A series of chapters on camp life, written from the feminine point of view, not a treatise on woodcarving, as the name might imply. Like most handbooks, which profess to introduce the novice to wild life, it will be found much more valuable as an appendix to a first experience than as a primer. There is much discovery of the obvious, such as "Waders should be carried if there is any necessity of wading." There are also many valuable hints, but the fact remains that a week in the open, with a skilled packer or "guide," teaches more to an intelligent pupil than a wilderness of books.

PAMPHLETS

Geographical Distribution of Vegetation of the Basins of the Rivers Eden, Tees, Wear and Tyne. By F. J. Lewis. Donor, the Author.

On Induced Variations in the Osmotic Pressure and Sodium Chloride Content of the Leaves of Non-Halophytes. By F. J. Lewis. Donor, the Author.

The Sequence of Plant Remains in the British Peat Mosses. By F. J Lewis. Donor, the Author.

The Plant Remains in the Scottish Peat Mosses. By F. J. Lewis Donor, the Author.

Faunas of Canada. By P. A. Taverner. Donor, the Author.

Recent Mountaineering in the Canadian Alps. By Chas. E. Fay Donor, the Author.

The Squirrels, Chipmunks and Gophers of Colorado. By R. B. Rockwell. Donor, The Colorado Mountain Club.

Trail and Timberline. Donor, The Colorado Mountain Club.

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